THE ELEMENTARY SCHOOL JOURNAL

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Educational News and Editorial Comment

LOW STANDARDS

The National Education Association has issued a news letter in which the emphasis is transferred from the item of actual shortage of teachers to the item of low standards. The statement accompanying the statistical table is as follows:

> Unquestionably the greatest educational problem before the American people is the securing of competent, well-trained teachers for every teaching position in the country, in rural as well as in city schools. At least two years of professional training beyond a four-year high-school course is the generally accepted minimum standard for teachers. The replies of county and district superintendents to the question, "What per cent of your teachers have had two years or more of training beyond the high school," show that in only a few states have one-half the teachers had that amount of training, and that in a large majority of the states less than one-half have had that much. Some superintendents report as few as ten per cent of their teachers having attained that standard.
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> The drive should be for a competent, well-trained teacher for every boy and girl in America. Until this shall have been accomplished, approximately, it cannot be said that the teacher situation is not a serious problem.

The figures which justify this statement were collected from nearly fifteen hundred county or district superintendents and show that there are 23,318 teachers whose qualifications are below standard known to these superintendents. It may fairly be

doubted whether it is desirable to have schools in which ill-trained teachers are employed. The American people have been warned against closing schools. Is it not time to bring vividly to public attention the dire consequences of teaching pupils the bad habits of thought that usually appear when teaching is of inferior grade? Communities are often complacent about poor teaching when they would not tolerate for a moment inefficient medical service even of the veterinary grade. The National Education Association does well to bring out the fact that the real disaster which impends is that of our sliding back into the stage of barbarism where schools will once more be kept rather than conducted, where children will be herded together under an attendant rather than guided in the acquisition of good mental habits.

FINANCIAL SCHOOL STATISTICS

A press dispatch from Washington gives school expenditures and attendance statistics for 1918 as follows:

Annual school expenditures in the United States passed the billion dollar mark in 1918, according to figures just made public by the Federal Bureau of Education.

The largest item in the nation's bill for education was for public elementary schools, which cost just a little less than $600,000,000. Another $163,000,000 went for public high schools, while private and parochial schools cost $55,000,000, and private secondary schools $84,000,000.

Universities and colleges took a very respectable part of the total, with $137,000,000; commercial and business schools represented $25,000,000, while for the education of teachers in normal schools over $20,000,000 was expended.

The nation's neglect of the rural school is clearly reflected by the new figures. Although rural schools have an enrolment of 12,258,567, as compared with 8,586,601 for city schools, rural schools received many millions less than the city schools—$354,000,000 for rural schools and $410,000,000 for city, or a per capita cost of $47.76 for the city and $28.85 for the country. Part of the difference, it is explained, is due to the fact that land for school buildings costs less in the country, but most of the difference, Bureau of Education officials assert, is due to lower salaries and all-around poorer provision for education in the rural districts. This is said to be the first year that separate figures have been compiled for city and rural schools.

Pupils in state universities apparently have more money spent on them than in the endowed institutions. The per capita cost in publicly supported

universities and colleges is $505.95, as compared with $291.31 in privately endowed institutions. The total bill for university and college education is almost exactly divided between the two types of institutions, although the privately endowed universities and colleges have nearly twice as many students as the public—246,263, as compared with 129,096.

The total enrolment in all types of schools was over 24,000,000 in 1918—that is, one in about every five persons in the United States attended a school of some kind. The elementary schools had 20,500,000, all but 1,500,000 of them in public schools, and the secondary schools more than 2,000,000, of whom 159,000 were in private schools.

PRIVATE SCHOOLS

The Commissioner of Education of the United States has felt moved to publish in *School Life*, the organ of the Bureau of Education, a statement of his position on the matter of private schools. Doubtless this statement was inspired by the recent discussion of the whole matter which was precipitated in Michigan by the proposal of a group of citizens to amend the constitution of that state so as to forbid private schools from receiving pupils. The Michigan proposal was defeated after a heated campaign.

In repeating the Commissioner's statement it may be well to lay emphasis on the phrases in which he points out the necessity of making private schools as good as public schools through state supervision. It is much wiser to advocate supervision than to attempt, as did the reform party in Michigan, the abolition of private schools. Supervision should, however, be insisted on at once. The Commissioner has made a strong case for the rights of parents to educate their children in private schools, but he has made the case no less strong for the equity of the demand that the opportunities of pupils be equalized through public supervision.

The Commissioner's signed statement is as follows:

Inquiry has been made concerning the attitude of the Bureau of Education in the matter of private and parochial schools.

I believe most fully in the American public school, its purposes and principles. It is the duty of every state to make its public-school system as effective as it can be made, and the duty of all citizens to co-operate heartily to this end, first, by providing good legislation and good administration, and, second, by paying willingly all the taxes necessary for it. The state is under obligation to itself and to the people of the state to provide as nearly as possible full and equal opportunity for all the children for the education necessary for individual

development, for industrial and economic efficiency, and for the wise and virtuous performance of the duties of citizenship in our democracy. The state and society should as nearly as possible remove all obstacles that stand in the way of any and all children in taking full advantage of the opportunities for education offered, and should guarantee to every child opportunities for education at least as good as those offered by the state and local community in which the child lives.

I do not, however, believe that the state should deny the right of individuals and societies to establish and maintain schools for the education of children at other than public cost. Nor do I believe the state should prevent or attempt to prevent parents or guardians from sending their children to other than tax-supported and state-controlled schools. Perfect freedom in the establishment and maintenance of schools and in sending children to other than public schools is, I believe, in thorough accord with the principles of our American democracy, and should be maintained. I believe, however, the state has a right to require parents to send their children to public schools unless at home or elsewhere they make provisions for their education at least as good as that offered by the public schools, and that it is the duty of the state to make such inspection of all private and parochial schools as may be necessary to make sure that the schools which children are permitted to attend in lieu of the public schools are substantially as good as the public schools, and that they offer instruction in those subjects which are generally considered necessary for good and intelligent citizenship and for successful living in our democracy. All schools, whether public or private, should be required to give instruction in the English language.

BETTER ORGANIZATION OF SCHOOLS

A publication of the State Board of Education of Wisconsin distributed for use during "Good School Week" outlines the general principles which seem to members of the board essential to success in school operations. Two sections are selected for quotation from this publication because of their wise advocacy of strong boards of education and of teachers' councils.

It seems clear that the steps here advocated are desirable. They would undoubtedly be more effective if the general state law of Wisconsin were so modified as to unify control of education and prevent what has for some years been an unfortunate division in that state, namely, the division between general education and industrial education. If this fundamental defect were repaired, and the program advocated in the following quotation were carried out, Wisconsin would be an example of progress.

It is the universal practice in the country that education is administered by independent governmental agencies. This is a result both of our legal theory that education is a state function, and of our desire to keep educational administration clear of the factionalism and politics of our municipal affairs. This evolution of separate administration for schools is in various stages of development in the various cities of the state. The time has come for a comprehensive state-wide city school law which will embody the tested results of our experience both in this state and in other states of the Nation. Such a law will embody the following propositions:

1. That the local board of education shall be representative of the principal elements in the community, particularly of labor, and of women.

2. That complete administrative independence shall be given to the city board of education of the state.

3. That taxing power to meet the normal needs of the city schools shall be given to the city school boards and requests beyond such amount shall be available only upon approval by the municipal authorities.

4. That the powers of the board of education shall be vested in the board as a unit, and they shall be exercised only after collective action by the board.

5. That the board shall select an expert educational officer, commonly known as the superintendent of schools, to be its educational adviser and its executive officer.

A necessary condition of permanent educational advance in Wisconsin is the enlistment of the active continuing co-operation of the 20,000 classroom teachers of the state in the formulation, improvement, and administration of a comprehensive, progressive educational policy.

Teachers must be made to feel that they are partners in our public-school enterprise. They must have some part in working out the program and formulating the plans. Unless an educational policy can be translated into the attitudes and habits of the teachers of the school system or institutions, it is futile. The most effective way of developing these attitudes and habits is to have the teacher assist in the working out of a policy to the degree that she feels it is in some degree her own—however slight.

We, therefore, urge the formation of teachers' councils in connection with the various city and county school systems of the state. These councils would be selected by the teachers themselves and would be given the right of hearing or the opportunity to make suggestions on all questions of educational policy.

We strongly urge upon such teachers' councils when organized and upon the regular teachers' associations, not only the necessity of their active interest upon suggestions made by administrative authorities, but the necessity for initiation themselves of proposals for educational programs and plans.

NORMAL SCHOOLS AND TEACHERS IN SERVICE

A novel experiment in the use of normal-school facilities for the training of teachers who are in service has been worked out in

the Oshkosh Normal School of Wisconsin. The principal of the training school describes the experiment as follows:

A year ago about a hundred of the teachers from Waupaca County spent a day at the training school here. Recently, the superintendent of that county requested a two-day visit at the normal school and the privilege of using the training department as a laboratory. On this basis the training department has arranged a two-day program by departments, the plan being that the teachers will go to the various classes and then at 11:30 meet with the supervisor of each department and discuss the work that they have seen, asking questions and having special things called to their attention. The same discussion period will occur at the close of the afternoon work.

The superintendent of the county informs me that it was by vote of the teachers that they selected the two days to be spent in our training school in preference to the usual county institute, as they felt that they would get much more out of it.

Monday we are preparing a similar program for the sisters who teach in the parochial schools of our city.

It has been a great pleasure to me to see this side of our work growing steadily during the last year and we are making strenuous efforts this fall to develop our training school as a clinic, not only for our own normal school, but for the teachers and superintendents in the state who care to avail themselves of the opportunity.

Sample programs for the morning of one of the visiting days are as follows:

PRIMARY DEPARTMENT

8:55– 9:00	Greetings
9:00– 9:30	Number
9:35–10:00	Reading (observation lesson)
10:00–10:20	Gymnasium
10:35–10:50	Silent reading
10:50–11:05	Writing
11:05–11:15	Phonics
11:15–11:30	Rhythms
11:30–12:00	Discussion of work observed

INTERMEDIATE DEPARTMENT

8:45– 9:35	Map projection
9:00– 9:30	Reading—Appreciation—Odysseus
9:40–10:00	Reading (silent) drill to increase rate
10:10–10:20	Spelling (drill lesson)
11:05–11:30	Geography—Cocoa (Project)
11:30–12:00	Discussion of work observed

JUNIOR HIGH SCHOOL

8:55- 9:35	Mathematics, the equation
8:55- 9:35	Geometry
9:35-10:20	English—Long-poem appreciation
9:35-10:20	First of series of lessons on President Wilson's addresses
9:35-10:20	English—Giving of silent-reading test
10:25-11:10	History—Use of source material in teaching Roman History
10:25-11:10	History—Organization of session of Constitutional Convention
11:15-12:00	History—Making an outline (socialized record)

The programs for the afternoon and for succeeding days are equally suggestive and deal with other phases of school work.

The experiment is illuminating because it points the way toward a close articulation of normal schools with the surrounding school systems. It also offers a solution for the difficult problem of providing year after year something that is really worth while for the institute which superintendents are commonly required by law to hold for their teachers. There is no reason why normal schools should not make themselves centers of a series of vigorous educational movements reaching out into the schools of the whole surrounding territory. At present it is too often the case that there is no contact whatsoever between these institutions and the mature teachers who serve the neighboring schools. The idea which is being worked out at Oshkosh is distinctly worth cultivating.

REORGANIZING PENNSYLVANIA NORMAL SCHOOLS

Pennsylvania had for many years a group of proprietary normal schools only loosely controlled by the state department of education. The strong demand on private schools that they bring a profit to their owners led, as was shown some years ago by a survey of these schools, to many undesirable practices. Especially was it common for the normal schools to undertake various lines of secondary-school instruction not at all related to teacher-training. In 1911 the legislature of the state authorized the gradual absorption of these schools by the state department and in September of this year thirteen schools passed into full control of the state and became part of the public-school system.

A new curriculum came into the schools as a result of state control. This curriculum was worked out in a conference made

up of representatives of the various schools and leading educators of Pennsylvania and neighboring states.

The curriculum is divided into four divisions, one of which is adapted to the preparation of kindergartners and teachers of the first three grades, others to the preparation of intermediate teachers, teachers of the grammar grades, and junior high school and rural teachers.

Each division of the curriculum has as its introductory course, not the old-time courses in history of education and psychology, but a course entitled "Introduction to Teaching." This course is described in full in the following statement:

> The primary purpose of this course is to aid students in selecting a specific curriculum at the end of the first semester, and to imbue them with a strong professional spirit and high standards of professional ethics. It includes consideration of the different types of teaching service, the general aims of the public schools and, more specifically, the work to be accomplished by the primary, intermediate, junior high and rural schools respectively, a brief sketch of the characteristics of children in these different types of schools and the qualifications required of teachers to meet the needs of children at the different age levels in these different types of schools. The broad social aims of each type of school and its relation to the state are emphasized.
>
> The instruction in this course is closely correlated with frequent visits of observation and participation in the training school.

Other courses in the curriculum follow the general lines of the recommendations made in the report of the Carnegie Foundation and represent a distinct advance in comprehensiveness and detail on the ordinary normal-school curriculum.

In addition to reorganizing the curriculum, the state department has adopted a program of reconstruction of the buildings and reorganization of the teaching staff so as to bring Pennsylvania into line with the best practices of those states which have avoided the dangers of private control in the development of normal training.

SILENT READING

There is very little doubt that the movement for the introduction of silent reading in the elementary schools, especially in the grades beyond the primary, has established itself in all progressive schools. In theory, at any rate, teachers recognize the shortcomings of oral exercises and assent to the statement that readings

should be of the type practiced by the mature reader who reads for the most part to himself. There is in practice, however, a great deal of uncertainty as to how to go about teaching silent reading, and one hears a constant demand from the schools for suggestions as to how silent reading is to be taught.

This demand for practical programs justifies a lengthy quotation from the report of the Supervisors' Round Table of Monmouth County of New Jersey which presents a program arranged grade by grade, and giving a body of concrete suggestions. The quotation is as follows:

PLAN FOR A SILENT-READING LESSON

GRADES 3–5

The regular reading lesson should sometimes be a silent-reading lesson. Such a lesson should be chosen with reference to the type of response desired:

Narrative—involving action and conversation, is most suitable.

Exposition is good.

Description not easy to handle.

Children may answer orally or in writing. May illustrate by drawing or may dramatize.

I. Teacher's preparation.
   1. Thoroughly familiarize herself with selection.
   2. Look up all doubtful pronunciations and meanings.
   3. Prepare thought questions.

II. Preparation with the pupils.
   1. Teacher gives a background or setting for story by discussing (*a*) author; (*b*) type of story; (*c*) illustrations.
   2. New words and groups presented (*a*) by phonetics; (*b*) by comparison; (*c*) by sight.

III. Pupils read selection silently.
   1. Length of assignment depends upon the grade and difficulty of selection.
   2. During the first reading pupils should grasp the selection as a whole.
   3. Re-reading may be directed to finding specific information, or selecting facts which relate to a problem under discussion.

IV. Pupils explain difficult phrases in the text.
   1. Explanation of difficult phrases aims to (*a*) clarify ideas gained from silent reading; (*b*) increase pupils' vocabulary.

V. Teacher and pupils ask thought questions which involve:
   1. Grasp of the selection as a whole.
   2. Careful character study.
   3. Comparisons with previous reading experiences.
   4. Use of judgment.
   5. Word study.

VI. Oral reading of parts of the selection may be given as proof for:
   1. Answers to thought questions.
   2. Character traits.
   3. Facts which relate to a problem under discussion.

VII. Pupils reproduce the selection.
   1. Written.
   2. Oral.
   3. Dramatization.
   4. Occupational projects based upon reading, such as sand-table, etc.
   5. Pupils suggest original titles for the selection read.

SUGGESTIONS FOR SILENT READING

While the study of the form, sound, and meaning of words, commonly called word study, occupies much time in the primary grades, it should not eclipse the acquisition of ideas and the interpretation of thought, for thought-getting becomes the great problem once the mechanics of reading is mastered.

GRADE I

The child should experience from the beginning that reading is a thought-getting and thought-giving process. To this end sentences and paragraphs should be worked over for thought under the teacher's guidance. This guidance is best given by skillful questioning.

Print on the blackboard several nouns representing objects in the illustration of a reader. The pupils read the word silently and point to the objects in the pictures.

Print action words or sentences on the blackboard or on cards and have children perform the acts indicated.

Reproduce, orally or by dramatization, to test thought-getting.

Read parts in response to the teacher's questions.

GRADE II

With the foundation of the first year's work, drills for quickening the reading pace and securing more accurate thought-getting should be furnished.

Assign longer selections for silent reading, two or three paragraphs. Test the results of this reading by oral questions, or by questions written on the blackboard to be read silently and answered orally.

Use review stories. Teacher begins story anywhere. Child who finds place first stands and reads.

See how far children can read in a given time, or how long it takes them to read a given selection.

Whenever possible, directions and assignments should be written on the blackboard to be read silently.

GRADE III

Give setting in a few words, or propose a simple problem which the reading will solve.

Sentences, paragraphs, and parts may be read in response to the teachers questions, aiming to get the essential facts of the whole unit.

Give speed tests to ascertain how far pupils can read in a given time, keeping accurate records for future comparison.

Reproduce to test thought-getting.

Encourage the pupils to ask each other thought questions in silent-reading lesson.

Write headings for paragraphs. (Simple outlining.)

Train the pupil to select the essential facts in a selection read. Ask, "What parts must you remember to be able to tell the story? Read the selection again and notice what parts you may forget and still be able to tell the story."

GRADE IV

Set a problem that reading will solve.

Prepare questions stressing the essential facts of the whole unit.

Determine the outline or plan of the story by finding the situations and naming them.

Expect pupils to reproduce a selection concisely after the first reading.

Make special assignments to different pupils to look up and report to the class.

Give speed tests to determine the reading pace and ability to gain thought.

Require the pupil to reproduce after a single reading what he considers the most important part in the selection read.

GRADE V

The silent-reading lessons in the fifth grade should aim primarily to train the pupils to acquire good study habits, such as: Concentration by means of speed tests. The ability to distinguish between important and unimportant statements. Rapid reference reading.

Have each child read a different book or story and prepare to read most interesting part to class. Require brief synopsis of the preceding and succeeding events.

Assign definite projects or topics in geography, history or English to be worked out by referring to the library.

Encourage the pupils to read and discuss current events and to bring into the classroom clippings to prove their points.

Read story or book and make written report.

Pupils read and make thought-provoking questions to ask each other.

Let the class co-operate in making an outline to include the important facts or events contained in a selection assigned for silent reading.

GRADE VI

The teacher should guide each step in the pupil's work. The first essential to consider is the type of reading itself. This implies careful analysis, tabulation, and indexing of readers, grouping according to material, and so selecting the work that it will have a direct bearing upon the life of the child or correlate properly with his other work. In this grade children enjoy travel, biography, adventure, and fiction. Selections should comprise literary wholes.

The chief needs of this grade are: (1) broadening of vocabulary; (2) growth in appreciation; (3) development of rapid reading; (4) comprehension.

Skillful questioning by the teacher should emphasize and clarify uncommon uses of familiar words, puzzling phrases, unfamiliar idioms.

Growth in appreciation will increase in direct proportion to the skillful selection by the teacher of the material to be read.

Frequent testings should be made for rate of reading and for comprehension.

The teacher should prepare outlines and questions tending to produce the gathering of sentence elements into thought units, and the recognition of their relations to each other. Practice along these lines will develop the habit of skimming a page quickly, at the same time grasping the essentials of the page. In oral reading, this would permit the eye to run ahead of the voice thus collecting the succeeding thought groups. In silent reading, it should produce rapidity.

GRADES VII AND VIII

In these grades the mechanics of reading should require little attention, the work of the previous grades having developed efficiency. There remains the extension of literary appreciation, skill in rapid reading, and development of retentive powers through reproduction.

All sixth-grade suggestions apply here.

The proper teaching of silent reading implies careful preparation on the part of the teacher, analysis of the selection into its scenes or situations, recognition of a definite purpose in giving each selection for study, and skillful questioning or outlining of the selection, so that the pupil may be able (1) to gain from the questions the gist of the selection, (2) to develop the same power of analysis in his own independent reading.

In this work visualization or picture-forming is of supreme import. The power to image is the first requisite of reading. The selection by the teacher of passages vivid in description will help to develop this in the pupil. It is here that the teacher's great duty in selection for growth in literary appreciation lies.

The following outline may help to explain a good method for pupils to use:

1. Read the selection through to gain the general idea.
2. Into how many scenes (situations) does the selection naturally fall?
3. Classify the selection—humorous, narrative, descriptive, etc.

4. Read again, looking for unusual words, unusual groups, and so forth, using your dictionary where necessary.

5. Name and describe the chief characters, points of interest, etc.

6. Would you recommend the selection to a fellow-student? Why?

RELIGIOUS TRAINING OF PUPILS

The school system of Batavia, Illinois, has been experimenting for a year with a system of religious training which is described as follows by the superintendent:

> The movement came from the churches and the instruction is given by the churches under the supervision of the various pastors. The school has simply been co-operating.
>
> We dismiss for this instruction on Thursdays. The first and second grades go from nine o'clock till recess, the third and fourth grades from recess till noon, the fifth and sixth grades from noon till afternoon recess, and the seventh and eighth grades from afternoon recess till four o'clock. The going to religious instruction is purely voluntary and must be asked for by the parent. Those who do not choose to go, remain in school and spend the time in supervised study. About 90 per cent of our children go. We refer to grade children only, for we are not having religious instruction in high school.
>
> It will be seen that there is no uniform course of study. Each church is a law unto itself in this regard.

It seems to the writer of this editorial to be a hazardous practice for the public school to relinquish its supervision of pupils without insisting on a definite and adequate guaranty of instruction as well organized as that given by the schools themselves. The state has placed on the schools the obligation of training children with a certain degree of efficiency. To this end the state requires all public-school teachers to reach a certain level of training. The state also requires communities to provide proper quarters for school operations and insists on the preparation of a suitable body of instructional material. There lurks much danger in any plan which admits that in matters of religion pupils may be turned over without supervision to those who may or may not attain to the standards of the common schools.

AMERICAN FORESTRY ASSOCIATION

The association named in the title of this note is making an appeal to the teachers of the country to put into their geography teaching some of the facts with regard to forest depletion.

The following reasons are offered why pupils and teachers should join the association:

Out of 850 million acres of virgin forest the United States has not more than 150 million acres left.

This is being cut down or destroyed each year *four times as fast* as new forests are growing. This means forest devastation in a comparatively short time. At the present time there are more than 100 million acres of waste land, formerly forest, which could be growing timber but is not.

The American Forestry Association is striving to perpetuate our forests, to provide for fire protection, for regrowth, for forest management which will assure a sufficient supply of forest products for our future needs. This can be brought about by adequate national and state legislation.

You are invited to become a member of the Association. Your membership will increase our income and enable us to carry on our campaign for perpetuation of our forests. Membership entitles you to our large and well illustrated magazine, *American Forestry*, each month. It keeps you informed about forest conditions, about trees, uses of wood, birds, and kindred subjects.

Please join! Fill out enclosed membership application blank and send check to the American Forestry Association, Washington, D.C.

A PORTRAIT OF ROOSEVELT FOR SCHOOLS

The American Defense Society with national headquarters at 116 East 24th Street, New York City, asks that publicity be given to the following announcement:

The American Defense Society believes there is no better way for patriotic work along the lines of Americanization than the placing of a life-sized portrait of Theodore Roosevelt, bearing his last message, in the public schools of the country. It is our desire that the pictures may be distributed as widely as possible so that his last words may influence and be ever present with the growing generation.

Through the generosity of one of our trustees we have had printed a large edition of a splendid likeness of our former President and we are actively engaged in distributing the picture free to the public schools of the country. The picture has already been placed in many schools of New York. The state of Pennsylvania will place one in every school in the state; Providence has ordered 1,000. All the schools of Connecticut are framing them and thousands are already hung in the schools of the West. Cleveland has hung 150, Louisville 70, El Paso 20, Butte 36, San Francisco 100, and there are many others.

It is the desire of the donor, however, that the scholars of the schools to which the picture is presented should voluntarily raise sufficient funds among themselves for the framing of the picture in a suitable manner, or that a fund be provided by patriotic citizens, if the scholars are unable to do so. Also that an appropriate ceremony with a patriotic address should be held in the schoolhouse at the time the framed picture is hung. If this patriotic plan interests you, we will be pleased to supply you with the required number of pictures for distribution in the schools of your city.

News Items from the School of Education of the University of Chicago

ANNUAL UNIVERSITY OF CHICAGO DINNER

The University of Chicago Dinner which occurs annually during the week of the meeting of the Department of Superintendence will be held at the Hotel Traymore, Atlantic City, Monday evening, February 28. Alumni, former students, and friends of the University are most cordially invited. The President of the University expects to attend. An interesting program which is being arranged will be announced later.

ALUMNI ACTIVITIES

During the past year the Alumni Clubs Committee of the Alumni Council of the University carried on an active campaign for the establishment of University of Chicago Clubs in various parts of the country. As a result, a very large number of clubs were organized which arranged interesting and successful meetings at frequent intervals. From reports received so far there is every indication of considerable club activity this autumn.

Members of the Faculty of the School of Education have had frequent opportunity during the last six weeks to meet groups of alumni and former students. On November 16, Miss Alice Temple, Chairman of the Kindergarten-Primary Department, addressed the Northern Indiana State Teachers' Association at South Bend, Indiana. Following the meeting, a University of Chicago luncheon was held at the Hotel Oliver which was attended by a representative group of alumni and former students.

Miss Mabel B. Trilling recently attended the Iowa State Teachers' Association where she spoke on the subject of home economics education. While at Des Moines Miss Trilling was guest of honor at a tea given by a group of Chicago alumnae.

On November 26 and 27 Dr. Charles H. Judd attended the Virginia State Teachers' Association. A dinner was arranged by Chicago alumni of Virginia at the Westmoreland Club, Richmond,

at which Dr. Judd discussed recent developments at the University and significant educational problems of the present day.

SCIENCE INSTRUCTION IN THE FIRST SIX ELEMENTARY GRADES

It has been recognized for some time that elementary science work in the grades has not accomplished all that has been expected. As a first step in a detailed investigation of the science problem in the grades Clem O. Thompson, A.M., recently made a study of the science curricula in the first six grades at the present time.

The sources of information were thirty-two state courses of study, thirty courses of study from cities with a population of 11,000 to 100,000, nineteen courses of study from cities with a population of more than 100,000, and five outlines in science by specialists in the field. All elementary-school subjects were examined to determine any science materials that are used in instruction.

The 252 topics which were found, classified themselves readily into six different groups, namely, animal, plant, physiology-hygiene, geography, physics, and chemistry. The percentage of topics relating to each of the six groups were, respectively, 15.5, 13.9, 18.7, 19.8, 23.4, and 8.7. It was found that the textbooks which are in use determine to a large extent the kinds of materials which are emphasized. Many courses of study in current use merely make page reference by months to available texts.

Each of the six groups in which the topics were classified was studied in detail. The following conclusions in regard to topics relating to animals illustrate the general character of each study: (*a*) The economic importance of animals is emphasized to a considerable extent, but not as much as it might be in some types of school systems. (*b*) Geographical location of states and cities determines the specimens chosen, which shows that teachers realize to some extent the value of materials that are at hand. (*c*) Animal materials are chosen to a considerable degree with the dominant industries of the states or cities as a basis of selection. This consideration should have received more emphasis in many courses. (*d*) The choice of materials and the emphasis given to materials in the various grades reveal the fact that they are adapted very well to children's interests as indicated in recent investigations of that problem.

PROBLEM-SOLVING OR PRACTICE IN THINKING. IV[1]

SAMUEL CHESTER PARKER
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Synopsis of this series of articles.—The three preceding articles contained (I) a discussion of "problems of everyday life"; (II) four "actual lessons" from the University of Chicago Elementary School illustrating practice in problem-solving from the kindergarten through the upper grades; and (III) a discussion of "how skilful problem-solvers think" as illustrated by Whewell's description of the methods of thinking used by great scientists. The present article will continue this phase of the discussion and conclude the series with Section IV on "rules for practicing pupils in problem-solving."

III. HOW SKILFUL PROBLEM-SOLVERS THINK (*Concluded*)

Dewey's notable account of "how we think."—Professor John Dewey is himself one of America's greatest thinkers and is at the same time a trained psychologist who has specialized in the study of thinking processes. Consequently, his book *How We Think* (1910) deserves very special study. It should be read carefully time and again in order to grasp its detailed meanings. I have known a number of students, and even writers upon education, who have studied the book superficially and, as a consequence, failed to grasp some of its most significant points. Some of his most fundamental ideas, for our purposes, are contained in the three following paragraphs. The headlines are not in the original, and the paragraphing is slightly altered.

Origin in some perplexity.—We may recapitulate by saying that the origin of thinking is some perplexity, confusion, or doubt. Thinking is not a case of spontaneous combustion; it does not occur just on "general principles." There is something specific which occasions and evokes it. General appeals to a child (or to a grown-up) to think irrespective of the existence in his own experience of some difficulty that troubles him and disturbs his equilibrium, are as futile as advice to lift himself by his boot-straps.

Form a tentative plan based on analogous past experience and prior knowledge.—Given a difficulty, the next step is suggestion of some way out—

[1] This is the last of a series of four articles on this topic. Reprints of the series may be purchased from the Department of Education, University of Chicago, for 40 cents each, postpaid; in lots of 25 or more, 35 cents each.

the formation of some tentative plan or project, the entertaining of some theory which will account for the peculiarities in question, the consideration of some solution for the problem. The data at hand cannot supply the solution; they can only suggest it. What, then, are the sources of the suggestion? Clearly past experience and prior knowledge. If the person has had some acquaintance with similar situations, if he has dealt with material of the same sort before, suggestions more or less apt and helpful are likely to arise. But unless there has been experience in some degree analogous, which may now be represented in imagination, confusion remains mere confusion. There is nothing upon which to draw in order to clarify it. Even when a child (or a grown-up) has a problem, to urge him to think when he has no prior experiences involving some of the same conditions is wholly futile.

Plan not accepted until carefully examined and criticized.—If the suggestion that occurs is at once accepted, we have uncritical thinking, the minimum of reflection. To turn the thing over in mind, to reflect, means to hunt for additional evidence, for new data, that will develop the suggestion and will either, as we say, bear it out or else make obvious its absurdity and irrelevance. Given a genuine difficulty and a reasonable amount of analogous experience to draw upon, the difference, *par excellence*, between good and bad thinking is found at this point. The easiest way is to accept any suggestion that seems plausible and thereby bring to an end the condition of mental uneasiness. Reflective thinking is always more or less troublesome, because it involves overcoming the inertia that inclines one to accept suggestions at their face value; it involves willingness to endure a condition of mental unrest. . . . Reflective thinking, in short, means judgment suspended during further inquiry, and suspense is likely to be somewhat painful. . . . The most important factor in the training of good mental habits consists in acquiring the attitude of suspended conclusion and in mastering the various methods of searching for new materials to corroborate or to refute the first suggestions that occur. To maintain the state of doubt and to carry on systematic and protracted inquiry—these are the essentials of thinking.[1]

Dewey's text; state of doubt plus systematic and protracted inquiry.—In general, this quotation from Dewey gives us the same notions of careful inquiry that we derived from the accounts of Kepler's thinking, namely (1) prolonged careful search for suggested solutions, (2) careful open-minded evaluation and testing of each suggestion or plan, (3) suspended judgment, patience to wait until the true solution has been discovered and verified. Since the language of Dewey's paragraphs varies from Whewell's account of Kepler, we can pick up from Dewey some excellent additional phrases to use in our thinking about training in problem-solving.

[1] John Dewey, *How We Think*, pp. 12–13. Boston: D. C. Heath & Co., 1910.

Perhaps the best of these are contained in the final sentence, "To maintain the state of doubt and to carry on systematic and protracted inquiry—these are the essentials of thinking."

With such an understanding of the nature of skilful problem-solving as we can derive from these accounts by Whewell and Dewey, and from the accounts of actual problem-solving lessons given earlier in the discussion, we can now proceed to summarize our ideas of how to train pupils in problem-solving.

IV. RULES FOR PRACTICING PUPILS IN REFLECTIVE PROBLEM-SOLVING

Assume suitable problem, adequate experience, and interesting dilemma.—At the outset of this section, we may assume (1) that a problem adapted to the pupils' maturity and experience is to be solved; (2) that the pupils have analogous previous experience and related information needed for the solution or they know how to proceed to get this information; and (3) that an interesting dilemma has been created. In other words, we shall assume that a suitable problem for solution has already arisen from some puzzling situation and that the pupils are interested in solving it.

Interest in problem increased by competition.—Their interest may arise from the mere instinctive interest in thinking which we described early in the articles and which leads many adults and children to enjoy playful puzzling about all sorts of perplexing, strange, unexpected, or disconcerting occurrences. This instinctive interest easily maintains itself and is greatly aided by the instinctive interest in *competition.* Pupils compete to make appropriate suggestions, to criticize the suggestions of others, and in general to "win out" personally in achieving the solutions of the major problem and its many subdivisions.

Teacher's threefold task.—With such an interesting situation created, the teacher's task becomes one of (1) guiding the thinking of the pupils; (2) aiding them when confronted by difficulties that are beyond their powers or which they would waste their time in solving; and (3) eventually making them aware of what good thinking is, so that they may consciously strive for it during their thinking, just as they strive to improve their handwriting or their reading.

Thorndike's parallel for guiding thinking. Finding the road to grandpa's.—The general nature of a teacher's activity in assisting pupils in problem-solving is cleverly suggested by Thorndike when he compares it to assisting a child to discover the road to grandpa's house instead of merely taking him by the hand and leading him there. In such guidance, Thorndike says:

> You must make sure (1) that the youngster knows what place he is to try to reach and (2) keeps it in mind. (3) He must also at least know that to get to a place [or to solve a problem] you must keep going and not lie down and go to sleep; (4) he must have some knowledge of the direction in which the house lies and of the roads and woods and valley in the neighborhood.
>
> He starts off correctly and at a cross road [or alternative in the problem] turns to the left.
>
> "What did you do that for, John?" [asks the guide]. "I don't know." "Where are you going?" "To grandpa's." "Where does that road go?" "To the schoolhouse." "Is that on the way to grandpa's?" "I don't know." "What comes after the schoolhouse if you go down this road?" "The church." "How long does it take to go from grandpa's to the church?" "O, a long time." "Is grandpa's near the church?" "No. It is a long way." "This road goes to the church. Is it a good way to go to grandpa's?"
>
> If your boy is bright enough, he now turns to the right, but soon comes to the end of the road [or the suggestion that is being followed in trying to solve the problem]. "Where do I go now?" says he. "Where do you think?" "I think we go through that field." "Well, try it and see."
>
> You rapidly approach a pond [or discouraging difficulty in the problem] and the boy sits down and cries. "I can't find the way to grandpa's." "What's the trouble?" "You can't get around this pond, it's all swampy." "Do you have to go around it?" "Yes. Grandpa's is up there and you have to go around the pond." "Go and look at the pond [or examine the difficulty] and see if you can find something that will help you to get to grandpa's."
>
> And so on with constant stimulation to the examination of each situation confronted, and with the selection and rejection of ways in the light of knowledge of their consequences, until grandpa's house is reached, or until the problem is solved.[1]

Five specific rules for conducting problem-solving lessons.—The general impression of methods of guiding pupils in problem-solving which we derive from this little imaginary story may now be formulated into the specific rules given below. These rules also summarize and definitize most of the points of technique brought out

[1] E. L. Thorndike, *Principles of Teaching*, pp. 150–51. New York: A. G. Seiler, 1905.

in the sample lessons in Section II, plus the characteristics of skilful problem-solving described in Section III of the discussion.

1. *Define problem.*—Aid the pupils to define the problem clearly. This rule is important in good individual thinking, but is particularly important in group thinking. For example, while writing the preceding paragraphs, I was disturbed by two well-intentioned intelligent persons who were arguing most vigorously, but quite uselessly, because they were talking at "cross purposes." I said to them, "Do you folks realize that you are not talking about the same thing? One of you misunderstood what the other asserted a moment ago." Upon a little inquiry, my statement proved to be true, the parties found themselves in perfect agreement, and I could proceed with my work undisturbed. In college debates, we find some of our best examples of care in defining the question or problem for a group discussion. Many hours or days or weeks may be spent in getting the problem clearly in mind and giving it such a satisfactory wording that definite profitable debating may proceed. In our seventh-grade lesson on sugar production, we noticed that Miss Parker had the class formulate a definite proposition as the basis of the discussion and then she wrote it on the board, so that all got it clearly in mind. In our fifth-grade lesson on London, we found she had written eight carefully phrased problems on the board as the basis of the lesson, and that each one that needed further defining received it in the discussion.

2. *Keep problem in mind.*—Help the pupils to keep the problem clearly in mind. This rule is necessitated by the large waste of time and energy that results from being side-tracked, even after the problem has been clearly defined. "Scatter-brained thinking" is a term to designate thinking that does not hold definitely to the question. In deliberative bodies that have good rules of procedure, one important duty of the presiding officer is to hold the discussion to the question before the house, and to rule out digressions. In the lessons in Section II, we saw frequent occasions for this procedure; e.g., in the second-grade lesson a child began to talk about dressing a French doll instead of an Arab doll; in the seventh-grade sugar-production lesson, the teacher had difficulty in restraining a boy from discussing "profitable" instead of "possible." Through

such guidance the pupils learn that "keeping to the question" is a characteristic of good thinking. They come to realize this from repeated suggestions from the teacher, such as Miss Parker's remark when the class was discussing the relation of London and the Thames, "It is not a good answer unless it shows how London is *related* to the Thames."

3. *Stimulate suggestions. Analysis, recall, guesses.*—Aid the pupils to make suggestions by getting them (*a*) to analyze the problematic situation into parts or elements, each of which may suggest a solution; (*b*) to recall previously known similar cases, or, as in arithmetic and geography, general rules that may apply; (*c*) to formulate from vague guesses definite hypotheses or tentative plans.

Control of one's own associations is difficult. Galton.—These rules are among the most difficult to explain and apply, because fertility in suggesting is probably less easily controlled by a thinker, and consequently by a pupil, than any other phase of thinking. This fact is picturesquely described by the eminent English scientist, Sir Francis Galton, a member of the noted Darwin family and well known as founder of the eugenics movement. He compares his mind, when solving a problem, to two rooms, one an "audience chamber" in which the main ideas of the moment have the floor, and the other an "antechamber" in which there is a throng of those ideas that are vaguely present in his mind at the time. "Successful progress of thought," he says, "seems to depend, first, on a large attendance in the antechamber. . . . . [This] thronging of the antechamber is, I am convinced, altogether beyond my control; if the ideas do not appear, I cannot create them nor compel them to come."

Maneuvers for attracting appropriate suggestions.—While Galton's statement that we cannot compel appropriate ideas or suggestions to appear is true, yet we can go through certain maneuvers that will tend to attract or arouse or recall them.

a) *Analytic attention focuses upon one element at a time.*—One such maneuver is to proceed to focus our attention on one part of the problematic situation at a time. For example, in the sugar-production problem, the class divided the issue into cane production and sugar-beet production and then focused their attention on the

former. Holding, then, to the problem of growing more cane, a host of issues were suggested, such as number of growing days, competition with Cuban labor, etc. Similarly, in fitting the front to the cardboard store in the kindergarten, attention was focused for a time on the *width*, and suggestions "sprouted" for determining this, for marking straight lines by folding, etc. In studying the growth of London, the fifth-grade class was found breaking the issues up into where the docks would be located, where the warehouses would be located, and similar questions with factories, homes for workers, fine residence districts, etc.

Each focused element brings its suggestions. By dividing we conquer.—Thus by actively dividing a problematic situation into certain of its elements, and purposely attending to one of these for the time being and neglecting others, we open up many sources of suggestion which might not have opened so soon had we merely passively regarded the large problem and waited for something to happen. The teacher can often help a class over an apparently insurmountable difficulty in their problem by merely suggesting that they devote their attention to a certain phase of it which she mentions, or by naming a number of alternative phases, one of which they take up and examine.[1]

b) *Recalling similar cases and rules that apply. Degrees of assistance.*—Recalling previously known similar cases or general rules that may apply is particularly easy in arithmetic or geography where the material is systematically organized. For example, when asked what conditions must be studied in planning to grow sugar cane, a pupil could say to himself, "Let me see, what conditions

[1] The proper location of *analysis* as a method of control in problem-solving has puzzled me more than any feature of this section. Its value is quite obvious and has been especially emphasized by William James. (See his *Principles of Psychology*, II, 339–40.) Whether (*a*) to locate such purposeful analytic concentration of attention under rule 3, as one means of controlling suggestions, or (*b*) to give it an independent place, has been my dilemma. In placing it as a control device under the more general heading of stimulating suggestions, I have been guided largely by my own experience in solving geometry exercises. In this case, it seems to me, I commonly focus my attention on a certain angle or a certain line *in hopes* that it will suggest some further possibilities of procedure. By thus controlling our attention, we discount somewhat Galton's point about being unable to control the thronging of the ante-chamber; because the aspect attended to, will, figuratively speaking, invite its own crowd to the room.

did we take up for growing cotton and corn?" Similarly, if the fifth-grade pupils who had studied London should later study the growth of New Orleans, they might say, "Let's see, what were some of the factors we brought out in the case of London?" In the case of mathematics, the procedure of recalling the desired rule is often aided mechanically by turning the pages until an appropriate one appears. The practice of looking up some related discussion in a book is a device that many students and scientists use to start suggestions that may help solve the problem. Such systematic recall may be aided by the teacher in various degrees. For example, in the kindergarten, the teacher may make a very general suggestion, such as, "How can we find out how many hinges a door should have?" or the more definite suggestion, "What shall we look at to determine how many hinges a door should have?" or the very specific suggestion, "Look at the doors in this room to see how many hinges we ought to have on our door."

c) Guessing. Leaps in the dark definitized as hypotheses.—Guessing and formulating definite hypotheses from the more vague guesses are processes that we found especially emphasized in Whewell's description of scientific procedure. Recently I heard a chemist say that for two years he had tried to obtain a certain reaction in his laboratory without success. He had tried a score of devices in vain. One day, while walking across the campus, it occurred to him to try out a procedure that he had frequently thought of but had always mentally discarded because it seemed too foolish. He went to his laboratory, tried it, and it proved to be the long-sought method. Providing that pupils are seriously concerned with their problems and have a fund of related experiences, such courageous guessing, leaps into mental darkness, should be encouraged. In class discussions, as many such pertinent guesses are rapidly made, they may be rapidly noted on the blackboard, then the more probable ones taken up and definitely formulated and examined to determine their value.[1]

[1] In high-grade scientific investigations, this "*method of multiple hypotheses*" is highly esteemed. Its general character is brought out in the following quotation from Dewey (*op. cit.*, p. 75): "Suggestion is the very heart of inference; it involves going from what is present to something absent. Hence it is more or less speculative, adventurous. Since inference goes beyond what is actually present, it involves a

4. *Evaluate suggestions. Open-mindedness; criticism; verification.*—Encourage pupils to evaluate suggestions carefully by getting them (*a*) to "maintain the state of doubt," i.e., to delay their final conclusion and to remain open-minded until the matter is finally proved; (*b*) to criticize thoroughly all suggestions, i.e., to anticipate mentally objections that might be made to them or consequences that might follow; (*c*) to verify suggestions and conclusions by reference to facts as revealed around them or in miniature experiments or in standard scientific treatises. The subdivisions of this rule we found especially emphasized in the last paragraph from Dewey at the beginning of this article.

a) *Maintain state of doubt. Avoid pugnacious stubborn argument.*—The rule about suspending judgment defines the general spirit that should prevail in the class and in the mind of each inquirer. It raises an interesting question concerning the amount of argument that should be permitted in classes. While argument may be very stimulating to thought and interest, the spirit of argument is often just the opposite of the spirit of open-minded inquiry. Argument is often closely akin to fighting; the more your opponent hits you, the harder, and frequently the more blindly, you hit back. I have seen pugnacious, argumentative boys in upper-grade classes, who cared nothing about careful evaluation of their suggestions, but were merely concerned to maintain these at all costs. Where such a spirit is allowed to become strong in a class, the opportunities for training in impartial, open-minded, scientific inquiry are jeopardized. The teacher should be herself a model of impartiality in inquiry; she should make this the dominant spirit of the teaching, and should train each pupil to esteem fair-minded search after truth as a high ideal and a desirable personal attribute.

b) *Acquire attitude of criticizing suggestions. Anticipate objections and consequences.*—Teaching students to criticize, to anticipate

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leap, a jump, the propriety of which cannot be absolutely warranted in advance, no matter what precautions be taken. Synonyms for this are *supposition, conjecture, guess, hypothesis,* and (in elaborate cases) *theory.* Since suspended belief, or the postponement of a final conclusion pending further evidence, depends partly upon the presence of rival conjectures as to the best course to pursue or the probable explanation to favor, *cultivation of a variety of alternative suggestions* is an important factor in good thinking."

mentally, possible objections to and consequences of a suggestion or scheme, appears as the notable feature of the work of certain teachers. The actual calling to mind of specific criticisms is a matter of fertility of suggestion, but the general attitude of trying out mentally each suggestion before adopting it can be maintained even in cases where one may be unsuccessful in calling to mind specific objections and consequences.

c) Verify by known conditions, miniature experiments, and scientific treatises.—Closely related to this mental trying-out is the verification of suggestions and conclusions by reference to known facts as revealed around us or in standard scientific treatises. For example, in the kindergarten construction lesson, a child who wanted to have only one hinge on a door should have felt that this was probably undesirable after examining all doors and finding none with one hinge. Of course, he might have tried one hinge and found that it wouldn't work. Wherever possible, however, in social life, people try to avoid an expensive, poorly conceived experiment if it is possible to determine in advance, from facts already known, that it will be a failure. Often scientific experimentation in a laboratory consists in carrying on some process in miniature, or on a small scale, to see if it will work. In primary construction classes, a similar practice is often followed by letting one child try out a suggestion before all adopt it. As further examples of the process of verifying suggestions, we found the pupils in the Arab-doll lesson referring to standard pictures of Arab life to verify some of their plans for the Arab costumes; and in the sugar-production lesson, we found the teacher provided with a report of the Department of Agriculture and a special scientific treatise on sugar, to use in checking up the conclusions that the pupils reached concerning the possibility of increased sugar-cane production.

5. *Keep discussion organized. Outlines, graphs, summaries.*—Help pupils to keep the discussion organized by proceeding (*a*) to build an outline of the main ideas on the board as they appear in the discussion; (*b*) to use diagrams and graphs for condensing fundamental facts and relations into a simple picture; (*c*) to take stock from time to time by summarizing the ground covered and

the next steps to be taken; (*d*) to formulate from time to time, as definite propositions, the net outcome of the discussion.

These last rules are very objective and easy to understand and illustrate. We found an example of building an outline on the blackboard in the sugar-production lesson; of the effective use of a graph to summarize the sugar situation in the same lesson and of a diagram to clarify and summarize the development of London in the fifth-grade lesson. We found the second-grade class taking stock of their plans for the Arab costume, and the fifth-grade class summarizing their facts about the relation of London and the Thames. The concise formulation of definite propositions containing the net outcome of the discussion occurred several times in the sugar-production and London lessons.

Summary of rules for conducting problem-solving lessons.—The five major rules with their subdivisions presented above describe many, if not most, of the special practices that should characterize a teacher's guidance of pupils during a problem-solving lesson. They may be summarized in more concise form in the following statement:

To stimulate and assist pupils in reflective problem-solving, the teacher should

1. Get them to define the problem clearly
2. Aid them to keep the problem in mind
3. Get them to make many suggestions by encouraging them
   a) To analyze the situation into parts
   b) To recall previously known similar cases and general rules that apply
   c) To guess courageously and formulate guesses clearly
4. Get them to evaluate each suggestion carefully by encouraging them
   a) To maintain a state of doubt or suspended conclusion
   b) To criticize the suggestion by anticipating objections and consequences
   c) To verify conclusions by appeal to known facts, miniature experiments, and scientific treatises
5. Get them to organize the material by proceeding
   a) To build an outline on the board
   b) To use diagrams and graphs
   c) To take stock from time to time
   d) To formulate concise statements of the net outcome of the discussion

Primary education no longer mere arbitrary memorization.—The type of training summarized in the foregoing rules differs greatly

from that which prevailed in many schools a generation ago and which was seriously advocated by a prominent American writer on education as late as 1904, when he said the age before twelve is the age for "arbitrary memorization, drill and habituation, with little appeal to children's interest or understanding." Such a theory was based on the assumption that little children cannot succeed in reflective problem-solving. It requires little observation to show that little children solve their problems by the same processes of making and evaluating suggestions that ordinary adults use.[1] The great growth that may be made by pupils in reflective ability, through providing opportunities from the kindergarten up, appears when one contrasts the recitations observed in the upper grades of an old-fashioned memorizing school with those in the same grades of a progressive school in which problem-solving methods prevail in construction, expression, history, geography, and other subjects. In such a progressive school, pupils in the upper grades are prepared to attack such a technical problem as increasing American sugar production in the effective manner described in these articles, and with a mastery of technical devices of research and inquiry not possessed by some educated adults.

Both routine drill and problem-solving have a place.—Let us hasten to say, however, that this emphasis on problem-solving should not lead to a neglect of routine drill of the type that prevails in the modern scientific teaching of handwriting, spelling, reading, and arithmetic. The necessity of such drill has been amply demonstrated in scientific investigations; and its presence in the school need not interfere at all with the adequate organization of problem-solving. Both may proceed in the same day without mutual interference, e.g., during the handwriting and spelling periods, the most intense, gameful, effective drills may be carried on, with little or no problem activity, while in some of the history and geography periods the most intense reflective problem-solving may prevail.

Give both habits and standards of good thinking.—Such training in problem-solving should not only give pupils greater skill in solving

[1] For experimental evidence on this point see F. N. Freeman's *How Children Learn* (Houghton Mifflin Co., 1917), chap. xi on "Problem-Solving or Thinking," and S. C. Parker's *Methods of Teaching in High Schools* (Ginn & Co., 1915), pp. 326–32.

problems in special lines, such as construction or geography, but it should also make them eventually clearly aware of what the attributes of good thinking are. For example, we suggested that pupils should come to esteem open-minded, impartial, suspended judgment as an ideal, as a personal attribute which they desire to possess. Similarly, we suggested that they learn to be on their guard to hold to the question under discussion. Again, we might have noted under rule 5 that the pupil should learn to appreciate the value of outlines, graphs, diagrams, and summaries as aids to effective thinking, and consciously strive to use these when appropriate occasions offer.

Cultivating originality. What does it mean?—The foregoing discussion helps us to define clearly what we mean by "cultivating originality," a phrase that is extensively but often vaguely used in many educational discussions. Very commonly such discussions consist merely of vicious attacks upon drill, routine, memorizing, and imitation, with strenuous appeals to rid the schools of these and to substitute, instead, training in originality and initiative. We have called attention to the fallacy of this position in the preceding paragraphs. So confused, however, is the issue concerning the proper balancing of reflective, original thinking, on the one hand, and routine drill and imitation on the other, that we shall note a few more points concerning it.

Capacity for original thinking is inborn, varies between individuals, and is often specialized.—In trying to make our discussion concrete, we may think of Edison, Darwin, Newton, and other great originators and inventors as typifying great capacity for original thinking. At the opposite extreme, we have the feeble-minded, many of whom, while able to learn such routine tasks as washing dishes or dusting, have little ability to solve problems. It is perfectly clear from scientific studies of geniuses and the feeble-minded, that the differences between them are due to inner characteristics of the individuals, usually inherited characteristics. These differences cannot be overcome by training. You cannot make an Edison out of a feeble-minded person. In the intermediate ranks, between the original geniuses and the feeble-minded, the capacity for original thinking is also determined by the individual's native endowment;

if he is well endowed by nature, he *may* become a skilled thinker; if he is poorly endowed, the best training will still leave him a poor thinker. Moreover, his capacity for original thinking may be specialized, e.g., a boy may prove quite ingenious in devising mechanical appliances, but fail in working original problems in mathematics. Similarly, a person may rank high in the capacity for original thinking in mathematics, but fail in making original compositions in music, or writing original poems, or devising original plots for novels. For our present purposes, it is sufficient if we can get the teacher to think of each pupil as possessing a certain amount of native capacity for original thinking. Her task is to cultivate each pupil's capacity quite specifically. If he is brilliantly original in geography, give him large opportunities; if he is rather stupid and unoriginal in geography, give him some small easy problems that will give practice for what little talent he possesses. In every case, treat each pupil sympathetically so as to develop such talents as he does possess for the good of himself and society.

The pupil must succeed in order to improve.—Such sympathetic treatment may be further justified by the scientific fact that, in any type of learning, a pupil learns through his successes. It is the successful performances, not the unsuccessful ones, that form the correct habits in solving problems and doing original thinking, just as in learning spelling or handwriting. A pupil who never succeeds in solving an original problem will not learn to solve original problems. Owing to the fact that problem-solving, as a rule, necessarily involves erroneous guesses and the testing of these, the teacher is confronted with a very delicate task in determining just how difficult the problems should be for each pupil, and just how much aid to give him in order that he may succeed and yet be required to do sufficient mental experimentation to secure the necessary practice.

Standardized graded problems needed.—Great help will be afforded in this dilemma when we have developed in each grade for each subject standardized, published, ready-made problems varying from the easy for the dull pupils up to those of sufficient difficulty to challenge the ability of the best thinkers in the class. We

noticed how Miss Parker was engaged in devising such problems with the necessary data for fifth-grade geography.[1]

Vary recitations for the timid, the aggressive, the slow, the impulsive, etc.—In the problem-solving recitation, the teacher must provide for individual differences by calling on pupils according to their capacities and temperaments. For example, for the dull pupils, the pupils who have little native capacity, she will save the easiest questions, remembering that they need to succeed in order to profit. The slow but capable thinkers will be taken care of by slowing up the pace frequently for their especial benefit. The timid but capable thinker will be watched carefully and probably given at first easy questions that can be answered in a few words. As he acquires confidence from his successful answers to these, he may eventually lose his timidity in this particular class. The impulsive thinker who does not stop to evaluate his suggestion before popping it out will need to be retrained, possibly by promising to ignore him if he continues wildly to make suggestions, but to favor him after he has made a well-considered one. The argumentative quibbler will need his spirit changed by being made to realize that the class does not care for his pugnacious, stubborn adherence to a suggestion, but will welcome him if he really tries to aid in an impartial inquiry for the true solution.

Large project problems often overlook the timid and slow.—It is in problem-solving which centers in large projects that the teacher needs particularly to be self-possessed and resourceful in providing for individual differences. For example, one sixth-grade class spent twelve weeks on a project dealing with the topic "Ships and Shipbuilding."[2] In carrying out this project, the pupils undertook a variety of problems of an expressional character. In such teaching, the more capable pupils exhibit so much talent in planning and

[1] The publishing of carefully prepared printed problems with the data for their solution will greatly facilitate the adoption of problem-solving methods in geography and the social sciences, especially by busy or inexperienced teachers. For examples of such publications for college classes see the series of *Parallel Source Problems in History* published by Harpers, and my own *Exercises for Methods of Teaching in High Schools* published by Ginn.

[2] Edith Parker, "A Sixth-Grade English Unit," *Elementary School Journal*, XV (October, 1914), 82–90.

devising things to do that they are likely to monopolize the interest of the teacher, leaving little or nothing of a problem type for the slow or the timid pupils to concern themselves with. This fact led Miss Parker, who organized this twelve weeks' project, to emphasize the fact, as we noted above, that in many problem-solving lessons the slow pupils are left entirely out of the game.

Conclusion of articles on problem-solving.—We opened these articles with an account of the part played by problem-solving in social life. We found both practical and speculative problems interesting children and adults. We found problems of many types, such as mechanical, diplomatic, moral, aesthetic, mathematical, etc. In Section II, we presented in detail four actual lessons which gave us concrete pictures of the conversational reflective activity that prevails in skilfully conducted problem-solving discussion lessons. In Section III, we showed how great problem-solvers think. We found them making many suggestions, evaluating these carefully and discarding the erroneous ones, and maintaining an unbiased impartial attitude in their conclusions. From Sections II and III we derived a number of rules for training pupils in problem-solving which we presented in Section IV. We suggest that the reader learn the summary of these rules as given above, and then with concrete pictures of the actual lessons given in Section II, plan to undertake, at least occasionally, to conduct problem-solving lessons in her own teaching. We prophesy that if she is a good thinker herself, she will find great pleasure in trying to develop skill in this important type of artistic teaching.

DEFINITE IMPROVEMENT OF READING ABILITY IN A FOURTH-GRADE CLASS[1]

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The study reported here was made as a part of class work in a course entitled "Special Problems in Teaching" given at the University of Cincinnati by Miss Frances Jenkins. Members of the class were experienced teachers confronted by the many problems which constantly arise in every live schoolroom. In the fall, each teacher selected a particular phase of classroom work which presented a vital difficulty. This problem was investigated during the course of the year and reported on toward the end of the term. In my fourth-grade class, the subject of reading caused more trouble than any other in the curriculum. The progress of several children was impeded by an exceptionally slow rate of reading combined with a marked inability to derive a proper number of ideas from the text. The idea of devising means for improving the rate of both oral and silent reading, and also of improving the ability of the children to secure an adequate number of ideas from the printed page defined the scope of my work—a work which was to be made objective by the use of reading tests. Eventually, the problem was reduced to the following statement: How to accelerate the silent-reading rate of a selected number of poor readers.

SELECTION OF CASES THROUGH READING TESTS

In order to select the children who were the poorest readers, forty-three fourth-grade children were tested in the following manner:

1. A quarter-sheet of paper is passed to each child. These directions are given: (*a*) Write name in ink on first line. (*b*) The words "Number of page,"

[1] The experiment described in this article was carried on at the Oyler School, Cincinnati, Ohio.

on second line. (*c*) The word "Line," on third line. (*d*) The word "Sentence," on fourth line. (*e*) Skip two lines. (*f*) Beginning on the seventh line, number lines from 1 to 10. (*g*) Place the pen in the groove on the desk.

2. Explain to the children that they are later to read silently. They are to do the best that they can and are not to ask questions if they do not know the meaning of a word. They will afterward answer some questions based on what they have read.

3. Pass the readers and announce the number of the page. The teacher reads aloud to the bottom of the page and stops, noting the exact time. The children read silently for one minute and at a given signal all books are closed. Each child reproduces the last line read, writing it in the space provided after the word "sentence." He will not ordinarily write it in its exact form, but the teacher will be able to judge how far the child has read. The books are now collected.

4. The teacher asks ten questions, requiring a one-word answer to each. Typical test questions based on the story of "Davy and the Goblin," page 90, *The Riverside Fourth Reader*, are as follows:

QUESTIONS

1. Who said, "Oh, if you please, I can't go"?
2. Who said, "Rubbish. Ask the colonel"?
3. Who was a silly looking little man made of lead?
4. Where did he stand?
5. What did he hold in his arms?
6. Who felt quite safe in looking up at him and asking permission to go on the Believing Voyage?
7. Who nodded his head and cried out in a little cracked voice, "Why certainly"?
8. Who jumped down off the knob of the andiron?
9. What fell over on its face upon the floor, as softly as if it had been a feather bed?
10. What was really a sort of boat?

ANSWERS

1. Davy	6. Davy
2. Goblin	7. Colonel
3. Colonel	8. Goblin
4. Mantel-shelf	9. Clock
5. Clock	10. Clock

The papers are collected.

Six of these tests were given during November. The material used consisted of selections from *The Riverside Fourth Reader*.

Not all the children were present for all the tests, but each was present a sufficient number of times to enable the writer to determine the median accomplishment of each one, both for the rate of silent reading and for the number of ideas retained.

The table on page 155 of *Measuring the Work of the Public Schools*, a volume of the Cleveland survey report, by Charles H. Judd, suggested the method for the selection of the cases for special instruction. The records were arranged in order from the most rapid to the slowest and grouped as closely as practicable on the basis of the following divisions: in the class of "rapid" records were included the most rapid 25 per cent; in the class of "slow" records were placed the slowest 25 per cent; the remaining 50 per cent, or approximately one-half of the entire number of records, were designated as "medium."

Arbitrarily, those records containing eight or more correct answers were placed in the "good" class. Those records which showed four and above, but less than eight correct answers, were placed in the "medium" division; and those with less than four correct answers were designated "poor." Consequently, an individual record would fall in one of nine groups, as shown in Table I.

The group of children requiring special instruction was now clearly defined. Their serial numbers on the chart range from 34 to 43. Although the problem under consideration dealt primarily with the silent-reading rate, the children had been tested orally for purposes of comparison. The data upon which to work consisted of the rates of both silent and oral reading as well as the number of ideas retained. The definite problem, then, was to speed up these poor readers.

METHODS OF ACCELERATING THE RATE OF READING AND OF INCREASING THE NUMBER OF IDEAS RETAINED

Discussing the problem of the rate of silent reading, William S. Gray[1] lists the following as factors influencing speed: (1) The care with which one reads. The reading rate varies with the attention given to the thought of the selection. (2) Familiarity with the

[1] W. S. Gray, *Studies of Elementary-School Reading through Standardized Tests.* Supplementary Educational Monographs, Vol. I, No. 1.

subject-matter. (3) Lip movements. (4) Habits of eye movement. (5) Power of assimilation. (6) Length of words. According to Quantz,[1] the factors which contribute to a rapid reading

TABLE I

SCORES OF FORTY-THREE FOURTH-GRADE PUPILS IN RATE AND COMPREHENSION OF READING ON TEST GIVEN IN NOVEMBER

No.	LINES	IDEAS	No.	LINES	IDEAS	No.	LINES	IDEAS
Rapid and Good			Medium and Good			Slow and Good		
1	28.5	8.5						
2	28.5	8.5						
3	28.5	8.5						
Rapid and Medium			Medium and Medium			Slow and Medium		
4	31.5	5.5	12	20.5	5	32	4.5	4.5
5	24	6	13	19	5	33	4	4
6	22	7	14	19.5	4.5			
7	21.5	5	15	17	6			
8	21	5	16	15	7			
9	21	5	17	15	6			
			18	14.5	5			
			19	14	4.5			
			20	12	4			
			21	11.5	4			
			22	10	4			
			23	9.5	4			
			24	7	4.5			
Rapid and Poor			Medium and Poor			Slow and Poor		
10	25	1	25	14	3	34	5	1.5
11	21	3	26	14	2	35	5	1.5
			27	12	1.5	36	5.5	0
			28	10	3	37	5	3
			29	10	3	38	4	2.5
			30	10	3	39	4	2.5
			31	8	3	40	4	2.5
						41		3
						42		2
						43		2

rate are in order of importance: (1) visual perception; (2) practice as determined by amount of reading from childhood on; (3) power of concentration. Huey and Dearborn expressed the belief that the reading rate might be increased by practice.

[1] J. O. Quantz, *Problems in the Psychology of Reading*. Psychological Review Monograph Supplements, Vol. II, No. 1 (1897).

Such are the significant findings of research workers in this particular field. How may I apply them to my own problem?

These children must become vitally interested in reading. The desire to read must be made paramount before they will conscientiously undertake the mastery of the mechanics of reading. To stimulate this desire, I worked with the children individually to find out their particular interests. I pasted pictures on cardboard with a simple little story beneath. At some odd moment during the day a particular child would be called to me, to whom I would show the picture and ask the question, "What would you like to know about this picture?" After the child had responded, I would say, "Would you like to read this little story and find the answer for yourself?" Usually the child was willing to do so. At all times I helped with the hard parts. As soon as the child was able to read the selection as well as possible under the circumstances, the card was his own.

Another method was this. I told part of a story and then referred the children to the reader to find the climax for themselves.

Library books containing illustrations were frequently presented. If the child was sufficiently interested to attempt to find out what the pictures were about, he might have the book. The children were taken to the library and taught how to find books for themselves. In some instances, the parents refused to let their children have library cards; but, with one exception, each child now has a personal library card.

Eight children in this group were lip-movers. I told them that I knew a secret about something that happens to some people's lips when they are reading to themselves. I wouldn't tell the secret; they must find out for themselves by watching their parents as they read the newspaper, and their schoolmates as they prepare their lessons. Very soon the secret leaked out. One small boy reported that he had seen an old man in the street car who moved his lips as he read a book. He illustrated the account, and the children immediately realized how foolish a lip-mover appears. Thereafter many a finger was pressed tightly over the lips to keep them in place.

In working along the lines of word-grouping in the early stages, the simple device of having the pupils find nouns with their qualifying adjectives was employed. The children selected such groups as a "naughty, disobedient prince," or "a very strange looking house." Then we selected phrases, such as "in the garden" and "by the sea." These were combined into larger and larger groups. In the beginning, the children's oral reading was disconnected and choppy. The results of this work appeared in a more natural rendition of the text.

TESTING TO MEASURE RESULTS

In May, six tests of the same nature as the November tests were given to the forty-three members of the class. The records were again grouped into nine divisions, classified as in Table I. The results are shown in Table II.

For convenience in comparing the records of individual pupils in the two sets of tests, each pupil is assigned the same serial number in Table II as in Table I. In making such comparisons for any given individual, however, it should be noted that, as regards rate of reading, the basis of classification is relative, so that an absolute gain in speed may not result in a change of position to a different group. This effect is readily perceived in the "slow" records of the two tables. The highest score made by any pupil who was classified in the slow groups in the first table is 5.5, while more than half the scores are below 5. In the slow groups of Table II, on the other hand, there is only one score as low as 5, all others being above the highest score of those similarly classified on the basis of their records in the previous tests. The position of each of the serial numbers 34 to 43 in the second table indicates at once the progress made by the members of this special group as compared with the entire class. One pupil (42) is advanced to the rapid group, ranking with the highest one-fourth of the class. Two others (39 and 41) are placed in the medium group, making within one and two points, respectively, of the highest score that falls in this group. Of the seven pupils remaining in the slow divisions, two (34 and 36) have surpassed the records of three who were classed as medium in November. From the point of view of the number of ideas retained, with respect to which the pupils are

classified on the basis of a scale of absolute values, six of the ten members of the special group have advanced to positions in the medium group. The absolute gain in both speed and comprehension for each of these ten pupils is shown in Table III.

TABLE II

SCORES OF FORTY-THREE FOURTH-GRADE PUPILS IN RATE AND COMPREHENSION OF READING ON TEST GIVEN IN MAY

No.	LINES	IDEAS	No.	LINES	IDEAS	No.	LINES	IDEAS
Rapid and Good			Medium and Good			Slow and Good		
3	37	8.5	8	21	8.5			
1	30.5	9	9	21	8			
7	27.5	8	2	20	9			
15	26	9	16	18	9			
6	24	9	10	15	8			
			11	15	8			
Rapid and Medium			Medium and Medium			Slow and Medium		
12	29.5	7.5	39	20	7	34	11	6
4	29.5	6.5	41	19	7.5	20	10	7
5	27.5	6	17	17.5	6	24	10	7
32	24.5	6.5	13	17	5.5	37	8	6.5
42	24.5	5	14	16	7.5	33	7	6
18	22	7.5	19	16	6	38	7	6
			22	16	6	30	6	6
			25	16	5			
			21	15.5	5.5			
			31	14	5			
			23	13	7			
			29	12	6			
			28	11.5	5			
Rapid and Poor			Medium and Poor			Slow and Poor		
			27	15	3	26	11	3.5
						36	11	2
						35	10	2
						40	6	2.5
						43	5	2.5

In every instance, the reading rate has been accelerated and, with but one exception, the number of ideas increased.

In summing up the effect of this experiment upon the entire class the following facts may be noted:

1. The records obtained from the tests in oral reading show that in all except two cases, in one of which the rate remained

stationary, the oral-reading rate of each child in May is more rapid than in November.

2. The data concerning the rate of silent reading in November and in May show a retrogression in nine individual records. In six cases this fact may be attributed to absence due to ill health. With the exception of two pupils who make the same score in the two tests, the reading rate of the rest of the class in May reveals a decided improvement over the November tests.

TABLE III

SCORES OF TEN "SPECIAL" PUPILS IN RATE AND COMPREHENSION OF READING IN NOVEMBER AND MAY

NUMBER	LINES READ PER MINUTE		IDEAS	
	November	May	November	May
34	5	11	1.5	6
35	5	10	1.5	2
36	5.5	11	0	2
37	5	8	3	6.5
38	4	7	2.5	6
39	4	20	2.5	7
40	4	6	2.5	2.5
41	.....	19	3	7.5
42	.....	24.5	2	5
43	.....	5	2	2.5

3. The records show not one case of retrogression in the number of ideas retained in May as compared with November, while only four pupils have the same median score in both instances. All the other children show a more or less marked improvement in this respect.

4. The most rapid reader is credited with 28.5 lines in November. In May the most rapid reader achieves an average of 37 lines per minute. The most rapid reader in May is credited with the same number of ideas as the most rapid reader in November, namely 8.5.

The conclusions to be drawn are self-evident. Generally speaking, there has been an acceleration of both the oral- and silent-reading rates of the entire class as well as a decided improvement in the number of ideas retained.

CURRICULUM-BUILDING IN ART. I

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METHOD OF DETERMINING MORE DEFINITE AND CONCISE TERMINOLOGY AND OBJECTIVES FOR USE IN PLANNING A COURSE OF STUDY IN ART FOR THE PUBLIC SCHOOL

Educational efficiency.—Efficiency in education is demanding more perfect methods of instruction, higher standards of attainment, broader surveys of social and industrial needs to determine aims and objectives for subject-matter, scientific methods of measuring attainment of aims of the various subjects of the school, and curriculum-building which will eliminate waste of time and energy on the part of both pupil and teacher. All of these demands apply to the department of art education.

It is the purpose of this article to discuss the problem of more definite organization of art instruction in the public school and the building up of a course of study in art based upon the results of recent investigations conducted in the Department of Art Education, School of Education, University of Chicago. A preliminary report outlining one phase of this work appeared in the *Elementary School Journal* last year.[1]

Objectives of art training may vary in different localities.—The field of art is so broad that it cannot be included in the public-school curriculum in its entirety. Certain fundamentals or objectives must therefore be determined upon as a basis for our art work. These fundamentals or objectives are to be ascertained by a careful study of the needs of art in life. Such needs are varied and not all of them can be fully provided for by instruction in the public school.[2]

[1] "Empirical Study of Pupil-Ability in Public-School Art Courses," *Elementary School Journal*, XX (September and October, 1919), 33–46, 95–105.

[2] See "Determining Aims of Art Instruction for the Secondary School," *School Review*, XXVIII (December, 1920), pp. 757–71.

It is also evident that the needs of art will be different in different communities and localities. In manufacturing centers the work will naturally possess a vocational aspect. For example, in towns where the furniture, textile, or pottery industries are dominant, the industrial-art content will naturally tend to be borrowed from these industries. In small residential towns where the pupils come from well-to-do families and where the main immediate object is to prepare for college or university, the more

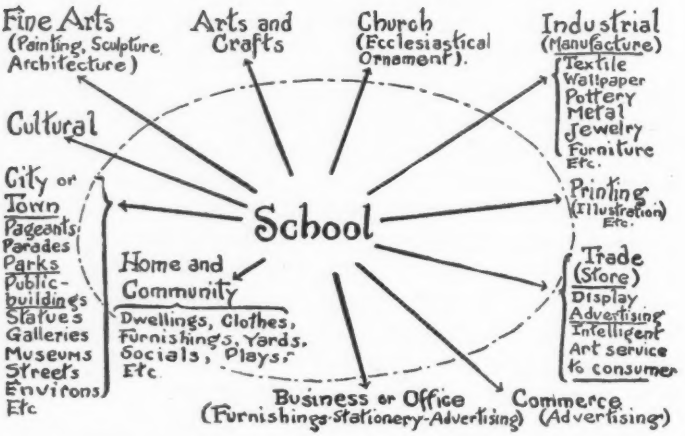

FIG. 1.—The school and its art connection with the child and adult life.

purely academic phase of art or the cultural side is likely to dominate the course of study. Hence we may find the objectives of art training swinging from the industrial or purely practical on the one extreme to the historical or cultural on the other, depending upon the community and its particular needs. Figure 1 illustrates in diagrammatic form the circle of art needs that surrounds the school and the pupil within the school. Particular localities will find it necessary to emphasize one phase of art more than another, but there will always be certain things common to all communities, as, for example, art needs for the home and community.

Public taste in home furnishings is an important factor in national culture. Art needs for the home and community are

generally recognized as a chief objective of art training in the elementary school. This being the case, it becomes necessary to canvass the situation in regard to the art work in the elementary school and determine whether the various courses offered in art provide adequate training of this nature. In order to do this we must analyze these courses in terms of subject-matter taught to determine what contribution they make.

Need for more definite classification of subject-matter in art.—In most communities we find that drawing, design, construction, modeling, and useful art knowledge and appreciation are regarded as a legitimate part of the required curriculum for the elementary school; and that the more purely technical phases of these subjects, including painting, elementary sculpture, and all the fundamentals of the fine and industrial arts may be introduced into the elective art courses of the high school.

However, when we say that a certain amount of drawing, painting, design, modeling, etc., is needed in the school, it does not mean very much, or rather it means altogether too much. We have had all of these subjects listed in the schools for many years. They have represented so many fads and frills and various kinds of art instruction that one becomes bewildered in trying to enumerate all that has been taught under the head of Art Education. We speak of fine art, applied art, constructive art, practical art, and industrial art. When we say we teach drawing in the school, the statement may mean one of a number of different things. We need a new way of thinking in regard to this problem, something more concise and definite in terminology. We need terms which have one meaning and only one.

Three types of drawing.—Drawing should be divided into at least three classes for a clearer estimate of its value as a subject for all pupils, namely, (1) "artistic" drawing, (2) descriptive or informational drawing, and (3) instrumental drawing.

"Artistic" drawing refers to the type of drawing or painting which is not primarily concerned with the actual appearance of the objects, but aims at artistic effect. This involves more of the artistic interpretation of objects and things and less of the precise details of contour or shape. Under this classification are

included watercolor painting and charcoal work as practiced in the schools, and all work in which the effect of light and shadow, illumination, and purely aesthetic considerations are involved. This type of drawing is of more value to the prospective artist than to the person desiring drawing ability as a practical means of expression. Figure 2 shows a few types of artistic drawing. In each case the appearance of light and shade is the basis of the sketch.

FIG. 2.—Illustrating types of "artistic" drawing

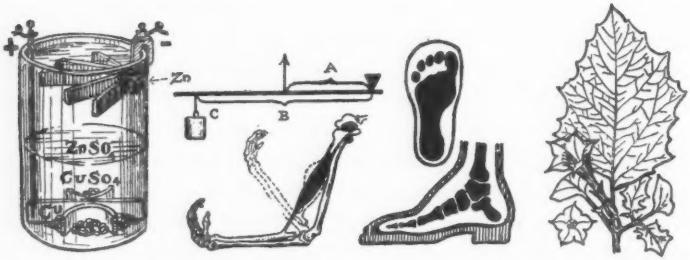

FIG. 3.—Descriptive drawing. Illustrating types of informational, diagrammatic, and analytical drawing.

Figure 3 shows types of descriptive drawing. In this case the outline or contour of the object is made the basis of the sketch. Under this heading are classified informational, analytical, and diagrammatic forms of drawing. This is the type of drawing that has the greatest practical value for all pupils. It might be termed a "graphic vocabulary." In working out a course of study these two types of drawing should be differentiated, one being of special value to all pupils alike, and the other having particular value for the artist or the pupil with special art talent.

Instrumental drawing refers to architectural and mechanical drawing as ordinarily taught in the schools. This kind of drawing will not be considered in this discussion, because it represents a type of drawing possessing an independent aim which is not primarily artistic. It is more a question of mechanical interpretation. It has attained its objective very satisfactorily.

Comparison of terms used in art instruction.—Reference has been made to the somewhat complex meaning of common terms or topics used in designating the different art subjects taught at the present time in the schools. When the subjects which these terms represent are analyzed with respect to the everyday needs of the pupil, their vagueness is further increased. A great deal of elasticity is common in the use of these terms and they are made to cover a very broad field. Consequently, we find that there is much doubt that the type of training afforded under them has great practical value to the majority of pupils in everyday life.

Take painting, for example. Does a knowledge of painting, as taught in the schools, really provide any valuable training for furnishing a home or for selecting clothing? Does it supply any knowledge which will aid in beautifying the city environment? Does it aid in training for the industries, etc.?

Table I represents a form of data-sheet which was prepared to obtain definite information concerning relative values of the art training given in the school under different headings which really functions in the lives of the pupils when they leave school. This data-sheet was mimeographed in blank form and submitted to fifty experienced teachers and supervisors of art in the public schools. They were requested to study the sheet with particular reference to the demands of art for the majority of the pupils in the school, leaving out of consideration the needs of the relatively small percentage of special-talent pupils. They were asked to review in their minds the type of art work taught in the schools during the past ten years and, without professional reservation or prejudice, to enter a check mark in the various columns so as to indicate where, in their judgment, the training furnished in the average schools by the different courses such as design, drawing, crafts, modeling, painting, history of art, and architecture met,

without question, the demands of art in the home, the community, the industries, and the other items listed at the top of the sheet.

The combined tally for each item of the sheet was obtained and translated into percentages. The judgment of these teachers is thus indicated in the table in percentages. Examination of the

TABLE I

Does the Training Afforded by These Subjects Meet the Demands of the Ordinary Pupil in These Capacities?	1. Home—Clothing	2. City or Town Environment	3. Industries	4. Expression	5. Drafting	6. Commercial	7. Publishing	8. Cultural	9. Fine Arts
Applied design	84	47	70	55	20	62	66	76	66
Drawing—Artistic	47	30	20	64	10	35	45	80	90
Drawing—Descriptive	30	20	65	67	55	60	60	40	50
Crafts	70	35	70	25	12	60	25	50	35
Modeling (sculpture)	45	50	28	50	10	14	9	90	90
Painting	60	30	25	60	2	50	55	80	90
History of art	70	72	65	50	12	45	50	90	85
Architecture	70	77	57	30	50	55	17	52	90

figures recorded in each of the several columns indicates that there is no certainty in the minds of these teachers that the training furnished by all of these art subjects functions adequately in the life of the pupil. At any rate there is confusion in thinking. This confusion can largely be eliminated by using more definite terms to represent the art work taught in the schools.

Definite nomenclature for art work.—All art is composed of the elements of line, form, tone ("Notan"-pattern of dark and light), color, and their composition or arrangement. This is true in the fine arts, industrial art, or ordinary art in the home or life in general. If we classify our art work according to these elemental terms, the thinking in regard to "outcomes" of art will be more definite.

For example, a knowledge of what constitutes grace and refinement, appropriateness, character, quality, and expression of line aids greatly not only in creating works of art but in selecting and purchasing furniture and objects of all kinds for the home; it aids in the production or selection of dress, the planning of interiors and exteriors of buildings, streets, parks, etc. A knowledge of the artistic quality of line aids directly in problems of the home, community, industry, expression, drafting, commercial, publishing,

cultural, and the fine arts. A knowledge of form, the relation of form to size, shape, proportion, and proper grouping and arrangement of different objects aids directly in the various art problems of everyday life. Good tone and good color planning assist in the same manner. Composition, which is the harmonious adjustment of the four elements for any particular use, aids in all of these ways. These elements may be thought of as "art structure" and they are involved in producing art quality in any form.

It is easy to analyze any situation involving a consideration of art and determine wherein a knowledge of good line, good form, good tone, good color, and good composition is a valuable asset. A knowledge and understanding of the proper use of these art elements aids us in judging art quality in any form. The extent to which these elements of art structure are correctly employed constitutes the difference between a distinctive, commonplace, or ugly production, whether it be a shoe or a painting, furniture or a statue, the interior or the exterior of a building, a poster, window display or other advertising effect, a bit of rare tapestry, an ancient cathedral, or a modern automobile.

Table II shows a form of data-sheet using these fundamental art terms as representing phases of art taught in the school. This sheet was submitted to the same teachers and supervisors as before. They were requested to state whether or not they think proper training in the elements of line, form, tone, color, and composition would aid in the art problems of those phases or activities of life indicated at the top of the sheet. The judgment in this respect is indicated in percentage on the data-sheet.

It was expected that the replies received would indicate whether clearer thinking would result in regard to "outcomes" of art instruction if fundamental terms instead of the present indefinite nomenclature were used to distinguish the content of art courses. The responses left little doubt on this point. The thinking is very clear and definite.

Then why not build our curriculum in art upon terms which are definite? It becomes a comparatively simple matter to determine how much training and what kind of training are needed in line, form, tone, color, and composition to meet the demands of art in life. It is then a relatively easy matter to introduce exercises

in drawing, design, modeling, color, the development of a "graphic vocabulary," and all the other types of art work which will give the particular kind of training and knowledge needed in the use of these elements for any particular grade. These exercises can be suited to the capacity and intellectual advancement of the pupil, and can be made to meet the objectives for any specific phase of art desired. This involves not so much a change in subject-matter as a change in classification, in emphasis, and in distribution of subject-matter.

TABLE II

Does a Proper Knowledge of These Subjects Provide Valuable Training for These Activities?	1. Home—Clothing	2. City or Town Environment	3. Industries	4. Expression	5. Drafting	6. Commercial	7. Publishing	8. Cultural	9. Fine Arts
Line	100	100	94	97	94	100	100	100	100
Form	100	97	90	97	80	87	97	90	100
Tone	100	74	83	94	30	94	90	100	100
Color	100	97	97	97	40	100	100	100	100
Composition	100	100	80	94	25	94	97	100	100

By using these five art elements as a basis for teaching, the thinking in regard to art on the part of the pupil can be directed much more definitely. Art work should not be all *doing*. There must be an equal amount of *thinking*. The pupil undertaking any problem in line, form, tone, color, or composition should learn how the problem, or similar problems, have been worked out by others. There should be lectures, discussions, collateral reading, trips to the art museum, stores, and factories, many illustrations, and good objective material as aids on the thinking side of the problem.

In this way a practical art knowledge and understanding can be developed on the part of the child which will enable him to make intelligent judgments in regard to the art problems he will meet in life. He will receive more mental training in art and his experience will be broader and richer. He will be better fitted to see and appreciate the fine things in nature and the works of man. He will know what line quality and refinement, what good tone and pattern, and good form, good color, and good arrangement

mean in the things he sees about him. He will have analyzed these art elements and will better understand their use in producing art quality.

Every art problem or exercise should have as its aim the imparting of knowledge and training in the use of certain types or qualities of line or form, tone, color, or composition, and the "outcomes" of the problem should be measured in terms of these particular aims. The use of these terms as a basis for our course of study in art will aid in a clearer, more direct system of curriculum-building to meet specific needs, in better analysis of results of instruction, and better methods of teaching art and art appreciation. It will help to eliminate the justly criticized "formalism" and meaningless exercises from our art work and there will be less possibility of becoming lost in passing "fashions" of art education.

The work of art education can never become narrowed down to one field and standardized like some subjects in the school. It is too broad in scope for this. New ideas, new material, new methods and angles of approach will continually present themselves for the betterment of our work, but we do need a better classification of aims and fundamentals so that the "outcomes" of the multitude of splendid problems being developed in the progressive schools throughout the country can be measured in terms of definite objectives.

The suggestions set forth in this discussion do not aim to curb the initiative of the teacher, nor do they seek to standardize art work except with respect to essential fundamentals. The same fundamentals may become the basis for a wide range of varied problems. While too much freedom results in losing sight of essentials which should always be the aim of art work, the individual methods of meeting these fundamental aims will depend upon the teacher. Any system of art education that attempts to stifle the initiative of the art teacher is bound to fail. Initiative and originality are characteristics of the typical art teacher. These are the qualities which have enabled teachers of art to make a remarkable progress and to attain a signal success in their efforts to solve the problems of art education.

[*To be concluded*]

LOCATING THE LANGUAGE ERRORS OF CHILDREN

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We were shown a number of years ago that children who have studied formal grammar do not write any better or interpret literature any better than children who have not studied formal, technical grammar.[1] We have also been taught that formal English grammar is ineffectual as a discipline.[2] However, the time schedule for language and grammar in the public schools has remained about the same. In fact there has been a tendency in recent years to extend the time schedule, particularly in the lower grades. This has been accompanied by the effort to find a better type of work than the old formal grammar. The better type of work, for the most part, has consisted of oral and written composition on a motivated basis, and more recently of specific work designed to correct the language errors of children. So far as the author knows, the first effort to list the language errors of grade pupils was that of the teachers in the schools at Connersville, Indiana, who noted the errors of grade- and high-school pupils through a period of two weeks, a total of seventy-nine different errors being reported.[3] Since that time a number of such studies have been made. The Boise study, reported in the special report of the public schools of Boise, June, 1915, followed in detail the Connersville plan and shows strikingly similar findings. The Kansas City study under the direction of Dr. Charters included written as well as oral language errors of children. The oral mistakes noted in Kansas City showed a situation almost identical

[1] Franklin S. Hoyt, "Studies in the Teaching of English Grammar," *Teachers College Record*, November, 1906.

[2] Thomas H. Briggs, "Formal English Grammar as a Discipline," *Teachers College Record*, September, 1913.

[3] G. M. Wilson, "Errors in Language of Grade Pupils," *Educator-Journal*, December, 1909.

with that discovered in Connersville and Boise. The Cincinnati study of the common mistakes in pupils' oral and written English as reported in the *Elementary School Journal*[1] was in some respects a more thorough study than any of the preceding ones and resulted in considerably extending the list of pupils' mistakes.

The particular purpose of the present article is to note the most common errors of the pupils as shown by all of these studies and to show that a survey in a small city conducted for but a short period of time will furnish most valuable data on which to base an important phase of the language work, namely, the correction of language mistakes made by the children. The table here presented shows the language errors noted in the Connersville study, followed by a list of any additional errors reported for each of the succeeding studies for which data are available. It will be observed that in addition to those of Connersville, Kansas City, Boise, and Cincinnati, a list of errors noted in the Iowa consolidated schools is included. This was the result of the scoring of 1,854 compositions of pupils in a number of conslidated schools.

LANGUAGE ERRORS NOTED IN THE CONNERSVILLE STUDY[2]

1. *Aint.*		K	B	(C)	12. You *can* go (for may).	C	K	B	(C)
2. *All* of us took an apple.					13. *Cetches.*	C		B	(C)
3. All of us took *an* apple.					14. He *clum* the tree.	C	K		(C)
4. *And*, and, etc. (redundant).	C				15. He *come* (for came).	C	K	B	(C)
5. He *are* here.	C				16. I'm *comin'*.	C		B	(C)
6. Where is he *at?*			B	(C)	17. I have *did* my best.	C	K	B	(C)
7. It is *awful* hot.	C			(C)	18. They *does* well.				
8. He did it that *away*.					19. He *done* it.	C	K	B	(C)
9. He *begin* it (for began).	C		B		20. *Don't hardly* (double negative).		K	B	
10. He begun it.				(C)	21. *Don't have no* (double negative). *Haven't no.*	C	K	B	(C)
11. The wind *blowed* fiercely.				(C)	22. He *don't* know it.		K		(C)
					23. He nearly *drownded*.				

[1] Isabel Sears and Amelia Diebel, "A Study of the Common Mistakes in Pupils' Oral English," *Elementary School Journal*, September, 1916.

[2] The letters to the right mean: C = Consolidated Schools; K = Kansas City; B = Boise; (C) = Cincinnati.

24. I *dunno.*
25. *'em* for them.
26. *Et* for ate. (C)
27. He *give* me one. C K B (C)
28. *Git.* C B (C)
29. Yes, I'm *goin'.* C (C)
30. I haven't *got* any. C K B (C)
31. We *got* home (for arrived, etc.). C K (C)
32. *Hain't.* C
33. John *he* did it. C K B (C)
34. *Her* did it.
35. It was *her.* C K
36. It was *him.* C K
37. *Him* and I will go. (C)
38. He did it *hisself.* K (C)
39. I don't mind *him* going. C K (C)
40. She told Doris and *I.* C K (C)
41. They *is,* or *was.* C (C)
42. *Kin* for can. (C)
43. I *knowed* it. C (C)
44. He *learned* me to do it. C K B (C)
45. She *loves* peaches (for like).
46. *Me and him* did it. C K B
47. *Me* and you did it. C
48. You are taller than *me.*
49. It was *me.* K (C)
50. *Misses* Fair (for Miss).
51. He picked it up *on* the walk.
52. *Onct* for once. C (C)
53. Neither this *or* that is correct.
54. *Oxens.*
55. This is *pretty near* (nearly) right. C
56. The bell has *rang.* C K B
57. It is *real* good (for very). C
58. Have *rode.* C
59. It *run.* C K B (C)
60. He *rung* the bell. C K B (C)
61. He kept *runnin'.* C B
62. I have *saw.* C K B (C)
63. I *seen.* C K B (C)
64. It *seems like* I should know you. K B
65. *Shall* you do it? (for will). C K B
66. He *sit* there until dark (for sat). C K B (C)
67. I *sung* at the club yesterday. K
68. Each one studied *their* lesson. C K (C)
69. *Them* apples are fine. C K B (C)
70. It was *them* (for they).
71. I like *those kind* of apples.
72. He *throwed* it. (C)
73. If there *was* (for were). C K (C)
74. You *was.* K
75. She has *went.* C B (C)
76. To *who* did you sent it.
77. *Who* did you meet?
78. They *wuz.*
79. Is this *yourn?*

LANGUAGE ERRORS ADDED BY THE KANSAS CITY STUDY (ORAL)

1. He *ask* me (for asked). C B
2. *Attackted.*
3. *Baddest.* C
4. *Beautifuler.*
5. *Done got.* C
6. Drink (confusion past tense and past participle).

7. *Had* ought. B
8. *Joyfulest.*
9. Lie and lay (confusion). C B (C)
10. *More* better. (C)
11. He only went two miles (misplaced). C
12. He looked up *quick.* (C)
13. I *taken* some. C (C)
14. She is the *tallest* (of two). C
15. That *there* book.
16. *Us* girls went. C
17. The problem *what* is assigned.
18. *Went and did* it. C B (C)
19. *Worser.* C (C)

LANGUAGE ERRORS ADDED BY THE KANSAS CITY STUDY (WRITTEN)

1. An, and. C
2. You all (one person). C (C)
3. Are, our, or.
4. They *drug* the road.
5. Fore, four, for (confusion). C
6. Have, half (confusion). C
7. Hear, here (confusion).
8. Lose, loss, loose (confusion).
9. New, knew (confusion). C
10. No, know (confusion). C
11. Of, off (confusion). C (C)
12. Road, rode (confusion).
13. The, they, there (confusion). C (C)
14. There, their (confusion). C
15. Then, than (confusion).
16. To, too, two (confusion, possibly spelling). C B
17. Threw, through (confusion). C
18. Where, were (confusion).
19. Introductory *why.* C B (C)
20. Your, you're (confusion).

LANGUAGE ERRORS ADDED BY THE BOISE STUDY

1. The four boys divided it *between them.*
2. Break (past tense and past participle). (C)
3. *Fur,* for far.
4. I didn't *go to* do it (intend to).
5. I *guess* so (for think).
6. He went *in* the house (for into). C
7. I *kind of* thought so.
8. *Lots* for many or much. C (C)
9. *Mad* for angry.
10. Sequences of tenses.
11. *Take* (past tense and past participle). He has *took.* C (C)
12. *Theirselves*
13. Introductory, well, now, so. C
14. *What for* did you do it?
15. *Without* I go, etc. (for unless).
16. Write (past tense and past participle). He has *wrote.*

LANGUAGE ERRORS ADDED BY THE IOWA CONSOLIDATED SCHOOLS STUDY

1. *A* for an.
2. *Along with* for with.
3. Alaways.
4. Ate *up.*
5. Bild for build (spelling).
6. *Best* for better.

7. Blue, blew.
8. *By* for buy (spelling).
9. *Came* for became.
10. *Eat* for ate.
11. *Every* for very.
12. *Fetch.*
13. *Got done.*
14. *Has never* yet. (C)
15. *Has* for had.
16. *Has* for was.
17. *Have* drove.
18. *Like* for as.
19. Nice.
20. *On* for one.
21. *Only* for except.
22. *Out of* for from.
23. *Pan full of.*
24. *Put* for but.
25. *Raining* for rainy (participle for adverb).
26. *Round* for around.
27. Scart for scared. (C)
28. Introductory *then.*
29. *Then* for than.
30. There (superfluous).
31. *They sows.*
32. Tolled for told (spelling).
33. *Until* for when.
34. *Up to* instead of at or in.
35. We *best* take.
36. *Went* for when.
37. *Would* for could.

LANGUAGE ERRORS ADDED BY THE CINCINNATI STUDY

1. *Boughten, tooken.*
2. *Brung.*
3. *Busted.*
4. *By* my aunt's.
5. *By* us for near us.
6. Doing dishes and help cook.
7. *Done* my work (sequence).
8. *Durst.*
9. *Good* for well.
10. *Gooder.*
11. *Haf* (for have).
12. He says, *says* he.
13. That doesn't *hurt* (make any difference).
14. In back of.
15. Largest (of two).
16. *Leave,* for let.
17. *Lend* for borrow.
18. *Make* dinner (for prepare or get).
19. *Never* gave.
20. Find fault *of.*
21. Perty, wich, wen, etc. (mispronounced).
22. *Sawn,* for saw.
23. *Suspicion* for suspect.
24. *Says,* present for past.
25. *Snuck.*
26. That *there.*
27. That, which (for who, whose).
28. *These there.*
29. Stays *to* home, different *to.*
30. *Upon* Monday.
31. Would *run* for ran.
32. *Youse.*
33. I *have* stayed at home and *had.*

One surprising thing is that a short study of two weeks in a small city, Connersville, gave a very extensive and helpful list of pupil errors. The number of errors added by the large Kansas City study, while important, is not very great. Boise added only a a few more. Quite a number were added by the Iowa consolidated school compositions but many of these are specific and would have

been included under the general heads of previous reports. It is apparent from an analysis of this composite list that the most common and doubtless the most fundamental errors were discovered in the first study and that practically all of these were likewise discovered in each of the later studies. A few items may be listed which, although not technically incorrect, are not good usage.

By summarizing these different studies, it is possible to determine with reasonable accuracy the few most common errors. The Connersville study showed that if the ten most common errors were corrected, 51 per cent of all oral language mistakes made by children would be eliminated. The list of errors which follows is made up by taking from each study referred to the ten most common errors reported in that study. The ten most common errors reported in Connersville are listed below as the first ten. Errors eleven to fourteen, inclusive, are the ones added in the first ten errors from the Boise study. Error fifteen is added by the oral errors from Kansas City. Errors sixteen to twenty are added by the written errors in Kansas City. Errors twenty-one to twenty-six are added by the consolidated school reports. Errors twenty-seven and twenty-eight are added by the Cincinnati study. These twenty-eight errors comprise all those included in the list of the ten most common errors reported in each of the studies noted, seventeen of them being supplied by the studies of oral errors and eleven by the lists of written errors reported from Kansas City and the Iowa consolidated schools. The numbers in parentheses at the right indicate the ten errors of most frequent occurrence when all these lists are combined.

TEN MOST COMMON MISTAKES FROM FIVE STUDIES

1. Ain't, hain't. (1)
2. Saw and seen (confusion). (2)
3. Plural subject with singular verb. (3)
4. Double negative. (5)
5. Have got. (8)
6. Come and came (confusion). (9)
7. Git.
8. Them and those (confusion).
9. Teach and learn (confusion).
10. Can and may (confusion). (10)
11. Do, did, and done. (4)
12. "And" for "to" with infinitive.
13. Shall and will. (6)
14. Go, went, gone.
15. Subject of verb not in nominative as: Her did it.
16. To, two, too (confusion). (7)

17. There, their (confusion).
18. Singular subject and plural verb.
19. The, there, they (confusion).
20. An, and (confusion).
21. And, and, and.
22. Lots of.
23. Got for arrived, received, etc.
24. Introductory *then*.
25. Is for are.
26. A for an.
27. I and my brother.
28. Frank and me in nominative case.

The outstanding facts about all of these studies of language errors are:

1. The list is exceedingly small.

2. When the lower-grade list is made up carefully, few errors are added by upper-grade children.

3. Lower-grade errors persist in upper grades.

4. Verb errors constitute fully 50 per cent of all errors and among these a very few verbs make up most of the errors.

5. Errors are specific, which means that they are not made by rule and cannot be effectively corrected by rule.

6. Oral and written errors are largely the same except that in written work one new class of errors enters, namely, the confusion of words of similar sound.

7. There is a strong probability that if the effort is placed on the correction of mistakes actually made by children, improvement can be made very rapidly. The Boise authorities report "striking improvement in a short time," but no specific data are given.

Among the other studies of language errors that have been made, one catalogued a total of 10,000 errors and found that the thirteen most common ones constituted 48 per cent of all errors scored, while forty-three items made 82 per cent of the total scored. This report merely confirms the conclusion drawn from other studies to the effect that the total number of errors of common occurrence is relatively small. In consideration of this fact, is it not reasonable to ask a teacher or group of teachers to discover the common language errors made by pupils with the notion of correcting them through games, pride in correct speaking, and the necessary direct instruction?

THE SCHOOL AND THE COMMUNITY

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Tradition's hold on schools, tenacious through hundreds of years, is slipping. Here and there a rift appears. Schools are venturing, a bit timidly, to break with books and the concomitant bookishness. Some of the ventures are experimental, some radical; they are bound to be. But there is significance for those who have dared to make the break in the fact that quotation marks less often appear in connection with the words "new" and "modern" when referring to new education and modern school.

When I was superintendent of schools in a Boston suburb and since I have been principal of a private school in Staten Island, I have undertaken considerable adjustment of the curriculum, basing the adjustment on a theory of education which is generally accepted but not so generally practiced. It is short. This is it:

School undertakes to prepare boys and girls for *life*, using the word in its big sense—life as opposed to existence. Therefore, the school tries to relate its teaching to life. It aims at the inculcation not of words but of ideas. It believes in studying not merely the textbook but, in so far as is possible, the *real* thing about which the textbook is written. The school is not an isolated place set apart to recite lessons in; in all its teaching it aims to come into touch with the world in which it is the school's place to prepare pupils to live. Self-activity and self-expression are key-notes of education. School work should be interesting. The pupils should see that school work is worth while. The school believes in methods that open eyes and wake up minds. The end of education is accomplished not merely by making pupils work but by making them *want* to work. The school aims to develop *initiative*, upon which more than anything else depend success, usefulness, and happiness in the world outside school. In a word, school aims to acquaint the

pupil with the world he lives in, so he *can* live in it; to awake him, so he *will* live in it.

That is sound pedagogy, I am sure. That it is sound common sense, I sincerely believe. Yet the break with traditional school isn't easy. It is hard to get away from books. And there are the college-entrance examinations to be prepared for!

My school has no particular course or subject labeled "The Community" but, naturally, believing as we do about the aim of education, we pay a good deal of attention to the city we live in, and we are glad there are few textbooks on the subject. Here are samples of how the pupils make the necessary acquaintances.

The fifth-grade pupils, in connection with geography, make a study of certain typical industries of the United States. Here, for example, is the way they study coal. First, they plan a visit to an obliging local coal dealer, and later discuss in class the things they want to find out from him—the kinds of coal: buckwheat, nut, egg, stove, etc., and their prices; how the coal is delivered to the home, how it is delivered to the dealer; where it comes from; how much it costs at the mine; how much it costs him, if he is willing to tell. The pupils go through the yards. They are shown and told the things they came to find out about. The steam shovel for unloading the coal interests them and the screening apparatus and the big scales—here's an opportunity for a practical sort of arithmetic, an arithmetic based on realities, which puts a great deal of vitality into the subsequent class work in the schoolroom. Then they get folders of the Lehigh and the Lackawanna, and trace the routes to Staten Island from the coal fields. They collect pictures of coal mining and study the process from their geographical readers and from reference books. Then they arrange a coal exhibit on the wall. There are pictures of mining, illustrated accounts written by the pupils, railroad maps, a few photographs taken by the pupils, the specimens of coal in boxes made in the manual training class, a chart giving prices. Other pupils and the parents are invited to the exhibit.

Staten Island has newly built immense terminal docks. Lying at the docks we see foreign ships with strange flags. Huge drays laden with merchandise plod through the streets. Outlandish

beings appear, turbanned, slippered, linen trousered, Hindus, Lascars, Chinese, Japanese. What does it betoken? We plan a trip to the docks leased by the Nippon Yusen Kaisha. The owner grants permission. The sixth grades studying Japan pay the visit. They, too, plan with the teacher what they want to see and find out—the owner of the line, the ships, the crew, the routes taken from Japan, what they bring, where it comes from, where it goes to, how it gets there, the freight rates, what they take back. They go to the docks, and before their eyes geography becomes alive. The products of the East—tea, spices, silks, people of the Orient, commerce, ships, Japan, China, the East Indies—a few blocks from the schoolhouse door!

The seventh-grade pupils in connection with their study of history take a trip to the historic landmarks of lower Manhattan. The class prepares for the trip by studying pictures of the places they are to see and by using reference books dealing with the subject. They use a map of lower New York, number the pictures to correspond with site numbers on the map, trace the routes, and after getting all the information they can and talking it over in class they take the trip. Here are some of the things they see and know about: Battery Park, the site of Fort Amsterdam and Peter Stuyvesant's House, Bowling Green, Pearl Street, Fraunces' Tavern, Broad Street, "Petticoat Lane," Marinus Willet Tablet, site of Federal House, Wall Street, Trinity Church, St. Paul's Chapel, Site of the Liberty Pole, Golden Hill, the City Hall, Nathan Hale Statue. The bare recital of the list conveys little to the reader, but the point is our boys and girls know these places and what they stand for, and as they sit on the bench in Bowling Green, stand about the table in the room where Washington bade farewell to his officers, walk up ancient Broad Street, sit in Washington's pew in old St. Pauls, read the inscription on the tablet commemorating the fight between Liberty boys and British soldiers, sit amid the furnishings of the first capital of the country in City Hall, they get a visualization, a patriotic thrill, a love of old New York, that hardly comes from textbook study. After the trip the City History Club loans us lantern slides and the class gives an illustrated talk to the school and sometimes the parents on "Historic Places in Lower Manhattan." Last year one of the pupils wrote the story of the trip with an account of

the historic incidents involved and it was printed in the local paper.

In the eighth grade the pupils study government—federal, state, and particularly city government. Here some of our most interesting trips are taken. Perhaps the most popular one is to the engine house. They go all over it. They see the sleeping quarters of the men with the provision for instantaneous dressing, the boys slide down the pole to the engine room, they see the alarm-recording apparatus. The obliging driver calls the horses to their places by the pole and snaps on the harness and the driver from his seat pulls the cord that opens the doors. Then they go to headquarters in the Borough Hall and have explained to them the fire-alarm system, concluding with a visit to a fire box and an explanation of how the alarm is rung in.

Another trip made by this class is to the Borough Hall where they visit the street-cleaning department, the sewer department, the tax department, and the borough president's office. They meet the borough president by appointment and he gives them a short talk about his part in the city government. He usually arranges for them a visit to the New York City Hall through which they are guided, concluding with a visit to a meeting of the Board of Estimate and occasionally the opportunity to meet the mayor and other members of the board. The same class has visited meetings of the local board when discussions of interest were due. Usually arrangements are made for a talk on the duties of a policeman by a member of the force. The pupils do not regard their trips as entertainments. They are first prepared for by talks and study.

In the eighth-grade arithmetic class the pupils study banking and business transactions by organizing and conducting a bank, buying and selling stocks and bonds, making investments in real estate. They read the financial pages in the newspapers and bring in and discuss clippings about foreign exchange, and stock and bond quotations. They became so interested that they suggested that the superintendent of the local bank be invited to explain problems that arose in the course of their play banking. He accepted the invitation and gave them an interesting and practical talk on the workings of a modern bank. The class has visited

also the Stock Exchange and the Curb Market and had a glimpse of what Wall Street means. Particularly interesting and worth while was the talk given on thrift by the secretary of a local co-operative bank in which he illustrated vividly how invested money grows, and explained the efficacy for saving of the co-operative bank. As a result of his talk many of the pupils took shares.

Each year the members of our graduating class undertake during the spring a piece of research work in connection with English which is written up, typed, illustrated, if possible, and bound and added to the school library. Last spring the general subject was Staten Island. Several pupils selected topics relating to its history; one pupil wrote on its historic houses, another on Staten Island of fifty years ago, another on Sailors' Snug Harbor, another on the Base Hospital, another on its industries, and so on. All of these were studied by personal investigation, by visiting and revisiting. The pupils themselves took the photographs used in illustrating. Some of the best papers were chosen to be given at the graduation exercises, all of them illustrated by stereopticon slides. On the program they were called "talks." "Essays" and "orations" sound too formidable. Three of these talks I want to speak of particularly. One was called "Housing at Home and Elsewhere." The young author told her story by a series of pictures with comments. There has been no concerted action for attractive homes on Staten Island. It has developed, as many a town, in a hit-or-miss fashion. She showed, for example, the wretched tenements erected by the brick works for its operatives. She showed the cheap rows of ugly houses all alike, built by speculative landlords. She showed the huge billboards of the Land Boom Company which sold lots at $10.00 down and $10.00 a month and in the next picture a couple of shacks that represented the only building on a plot after a selling boom was over. Then she showed a series of slides, some of them loaned by a New York architect, and some made from pictures in architectural magazines, illustrating the garden suburb, pictures of Hampstead Garden Suburb, of Weld Hall and Gretna in England, pictures from Bridgeport, Beloit, Williamsport, pictures showing the development of a single block in Elizabeth. She concluded with an appeal to the real

estate men of Staten Island to take advantage of its wonderfully attractive building sites.

The second talk was called "Just among Ourselves." This speaker had taken many pictures. There was one of the chalked scrawlings on the new Court House. There were several offensive billboards; one of these hid one of Staten Island's loveliest views. The author had stepped behind the billboard and photographed the vista shut from view by the crude blatancy of "Budweiser Everywhere." She showed pictures of ramshackle deserted houses, rubbish heaps, littered back yards. I heard the audience gasp. Then she showed a series of "before and after" pictures showing how by concerted movements, by city-beautiful campaigns, other towns had obliterated unsightly spots.

The last speaker called her talk "Cleaning Up." Near the school was a vacant lot that served as a dumping ground for odds and ends of rubbish. It occurred to the school that pupils' interest might be enlisted in ways and means of getting that and similar rubbish heaps cleaned up. So we had offered a prize for the composition giving the best suggestions for ways of going about the cleaning up. The pupils responded with interest and the compositions with their various suggestions had been turned over to the aforesaid last speaker. Her task was to use the various suggestions, or any other plans and methods that she could think of, and go ahead and see how they worked out in practice. "Get the place cleaned up and tell how you did it" were her instructions. She began with a picture of the rubbish-laden lot and told how she had gone to the Civic League, the Street Cleaning Department, the Board of Health, the Park Department, back to the Civic League, to the Tax Department to find the owner, to the owner himself—and each thought the cleaning up was some one's else job. Then she called on the school troop of Boy Scouts. They did it. The last picture showed them with hoes and rakes and shovels.

I have left to the last one important bit of theory upon which our practice is based. It is this. Pupils are not to be receptacles. If what they learn in school is apparent to them as *worth while* they will pass it on; they will *want* to pass it on. They will talk about it at home. They will like to arrange exhibits and talks and

illustrated lectures for other classes, the school, and their parents; and I believe pyschology sanctions the statement that by thus doing, they themselves will get a better grasp on the thing they have studied, exhibited, photographed, and talked about. By breaking down the barrier that once existed between school and the world outside, it is even conceivable that the school may render real service to the community.

I remember seeing in the front of certain books the publisher's imprint in Greek which I venture to translate, "If you have Light, pass it on." I think that is a very fine motto for a school.

A GROUP TEST FOR MEASURING READING VOCABULARY IN THE FIRST GRADE

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I. PURPOSE OF THE TEST

The development of the test to be described in the present brief paper has been part of a larger study aiming at the development of a series of group tests, of both intelligence and achievement, for use in the first three grades. Throughout the course of this work, tests for use in the first grade have been felt to be particularly important. In the first grade the very beginnings of the process of learning in school can be studied; from a pedagogical point of view, then, measurement of the educational process in the first grade would seem a matter of the greatest interest. Adjustment to differences in ability—by division of classes into sections, or otherwise—is also particularly easy, and acceleration may very well begin here; hence, measurement of the educational status of children in the first grade seems decidedly worth while for practical educational purposes. It is also obvious that tests for use in the first grade would be of distinct service from a supervisory point of view and would aid in giving definition to the work in a grade where definite requirements are sometimes seriously lacking.

Effort at the formulation of tests for use in the first year of school seemed, in short, distinctly worth while. Interest was added to the project by the unique situation, so far as measurement of fundamental educational products is concerned, presented by the course of study common in the first grade. The usual subjects are reading, writing, drawing, and music. The writers were interested primarily in factors conditioning a child's progress in school; they were interested in critical or "promotion" subjects. Neither drawing nor music could be thus considered; nor, in actual practice, can writing be so considered. In practice, a child is never actually retarded *merely* because he cannot write; it is more common to promote children on trial if their writing is poor but their reading

good. The one critical subject is reading. The problem of educational measurement in the first grade is thus essentially very simple. With such a key subject—of a very definite and concrete nature, as is reading in the first grade—data should be both readily obtainable and of exceptional value.

A special effort has therefore been made to develop a convenient and reliable test for measuring progress in reading which could be used in the first year of school. While the resulting scales have their obvious limitations, the writers have found them of distinct usefulness. It is hoped that the tests will at least stimulate further work along this general line; there has thus far been all too little study of the problem of measurement in the primary grades.

II. THE TESTS AND THEIR DEVELOPMENT

The work began with the use of Haggerty's visual vocabulary test, as an aid in supervision of teaching in the first grade.[1] The test is given individually and requires about five minutes per child. It consists simply of a carefully selected and graded list of words printed on a piece of cardboard, which the child is asked to read. The score is determined from the distance down the list which the child is able to go. The test was given every two weeks throughout a school year—alternating forms, of course—to a class of first-grade children, and was found to give information of distinct helpfulness to the teacher.

It was felt, however, that the test was unnecessarily time-consuming, not perhaps as standard in its procedure as it might be, and altogether impossible of such extended application in educational surveys and in supervision as the writers desired. An effort was therefore made to put the same problem in group-test form. A number of methods were tried. The device was finally hit upon of using simple words and nonsense syllables, asking the children to find the "real words" and indicate them by drawing lines around them. A trial form was made up and mimeographed, consisting of such lines as

pl on re tu os

[1] M. E. Haggerty, "Scales for Reading Vocabulary of Primary Children," *Elementary School Journal*, XVII (October, 1916), 106–15.

The children were to find the one real word in each line, and mark it by drawing a line around it.

The test was found to go excellently. Accordingly, two forms containing a total of fifty items were made up and given to all the first-grade children in School A, a total of 148 cases. These results were then tabulated by item, the P. E. values found, and two duplicate scales, each containing twenty-two lines, made up on this basis. The first five lines of Form A are as follows:

tl mz the unf pr
wx I sn en w
ol bux ts lz go
see elx bim ts osn
bul og he bu ln

The problem of the test is carefully developed through the first five lines which are used as examples; following these are the twenty-two lines of the test proper. The directions for Form A are to be given orally as follows:

Look at the first line! Who can see a real word in that line? What is the word? Yes, "the." What part of the line is it in? Yes, right in the middle. I want you to draw a line around the word "the" because it is the only *real* word in the line. The other groups of letters don't make words. Draw a line around "the."

Look at the next line! What is the real word? Yes, "I." Draw a line around "I" because it is the only real word in the line.

Look at the next line. What is the real word? Yes, "go." Draw a line around "go."

Look at the next line! What is the real word? Yes, "see." Draw a line around "see."

Look at the next line! What is the real word? Yes, "he." Draw a line around "he."

Now, everyone attention! I want you to read over the rest of the lines on the page in the same way. In each line there is *just one real* word. You find the real word in each line, and then draw a line around it.

The children are allowed exactly three minutes after the directions are given for work on the test. In scoring, count only the lines in which the correct word, and nothing more, is marked; the score is simply this total of items correct. It should be added that *any* indication of the correct word—line around, line under, cross —is considered satisfactory; the child is not required to follow

directions exactly, but only to show in some unmistakable way that he knows the word in question.

III. FIRST NORMS AND VALIDATION

The two final forms were next given to the first-grade children in the two remaining schools of the city.[1] In one school Form A was given first, followed immediately by Form B; while in the other school the order of giving was reversed. It was hoped that in this way the influence of fatigue and practice might be evenly distributed. A total of 187 children in the I B and I A grades were tested. The tentative norms thus obtained are presented in Table I.

The results obtained from the two forms were next correlated with each other in order to obtain some indications as to the reliability or consistency of the measures yielded. The coefficient was found to be .86, a result which, everything considered, is surprisingly high, and which indicates that a very considerable degree of confidence can be placed in these tests as measures of the type of ability called for.

However, it remains to be proved that such ability is closely related to ability to read. Data with regard to this last question —as to the "validity" of the scale—were obtained by examining the children in one of the schools individually, with exactly the same words, and in the same order, as the words used in Form A. That is, the children were given the Haggerty test.[2] This individual examination was given a day or two after the group test and before the examiner knew of the results with the group form. The children were interviewed one at a time, and a painstaking attempt was made to determine just how many of the words used in the group test each child *really knew*. The results obtained from these individual examinations were then correlated with the

[1] The writers wish to express their obligations to the principals and teachers of these two schools, for their interest and help, and to Superintendent E. E. Ramsey of the Bloomington schools, without whose co-operation the entire study would, of course, have been impossible.

[2] It should be mentioned that the words used by the writers were taken from Haggerty's lists, and so were already graded and selected as words satisfactory for work with first-grade children. Hence the small amount of preliminary experimentation needed in order to obtain satisfactorily graded group forms.

records made on the group test. The correlation was found to be .83. If, therefore, Haggerty's test is a test of reading vocabulary, then the writers' scales would appear to be also measures of this aspect of reading ability.

IV. THE USEFULNESS OF SUCH SCALES

It may be argued that the Haggerty scales are *not* satisfactory measures of progress in reading, that such emphasis upon the individual word is unfortunate, and that understanding of the

TABLE I

	Grade I B	Grade I A	Grades I A and I B
Form A			
Median	4.0	10.0	5.4
75 percentile	9.2	17.0	12.0
25 percentile	1.0	3.5	1.7
Form B			
Median	3.9	9.8	5.1
75 percentile	8.9	16.7	11.9
25 percentile	1.0	3.4	1.6

entire sentence should rather be stressed. One's feeling in the matter will depend, of course, upon one's theory as to the way in which ability to read develops. And the usefulness of such vocabulary tests will be dependent, somewhat, in a given school or school system, upon the methods employed in teaching reading. It seems to the writers that, in the first grade, measurement of the reading vocabulary is measurement of the most important element in learning to read. They feel that in any case investigation of the reading vocabulary is well worth while.[1]

If such investigation *is* worth while, then it may be carried out by means of these scales in the merest fraction—about one-

[1] It should be added that a sentence-reading test was tried. It consisted of a series of sentences such as "See dog my pretty book"; each sentence had one irrelevant word, which the children were to find and cross out. But the test was found to be too difficult; almost every sentence contained some words which the children did not know.

Mention should also be made of the fact that a test similar to that described in the present paper, but more difficult, has been tried in the second grade, and results correlated with very careful estimates by the teachers as to reading ability. The correlation between test score and estimated ability was found to be .71 (156 cases). The teachers were probably estimating oral reading, rather than real "reading with understanding." But the correlation surely contributes to the justification of the test as a reading test.

fifteenth—of the time required for individual testing and with less embarrassment to the children and more standard procedure. Measurement of the progress of a given class through the year and comparison of classes and schools in a given system would seem particularly interesting. For investigation of the first topic more forms than the writers have developed might be needed. But it is no small merit of the test that an indefinite number of other forms can be readily made up, and that the material can easily be mimeographed. The writers have throughout aimed at a trial of methods rather than at the development of a few special blanks for use in such work; and they should be much interested to have others make trial of the general idea of the test, with forms specifically adapted for use in their own school systems. To the writers, in fact, certain still more general features of the work have seemed most important. They believe the tests to have demonstrated, with some definiteness, the possibility of measurement of educational products by means of *group* tests in the first grade, and even as early as the third month of school. And they feel that there is a special need and opportunity for development of group tests for use with primary children.[1]

SUMMARY

1. The paper describes an effort to develop a group test for measuring reading vocabulary for use in the first grade.

2. A simple group test for this purpose is presented. It takes five minutes to give; the blanks can be scored as rapidly as four a minute. A duplicate form is also presented.

3. The scale is shown to have a high reliability, and to correlate very highly with the results of individual tests of vocabulary. It is concluded that the scale may be considered to give a distinctly satisfactory measure of reading vocabulary in the first grade.

4. It is also concluded that group tests for use in the first grade are entirely feasible, and that the development of group tests for use with primary children is much to be desired.

[1] Since the writing of the present paper the tests have been printed on a special form, using large primer type and thoroughly restandardized. These standard forms are issued by the Department of Psychology, Indiana University, and may be obtained through the writers.

Educational Writings

REVIEWS AND BOOK NOTES

School survey of a medium-sized city.—The "Educational Survey Series" has recently been extended by the addition of an eighth volume[1] which gives a complete study of the administration of the school system of Boise, Idaho. This survey is general in type and covers, in a well-balanced treatment, the various factors of school administration. It was authorized by the school board in April, 1919, and the final report of the staff was submitted in December of the same year.

In gathering its data, the survey staff "spent approximately two weeks, beginning May 19, in active study and observation of the schools in operation. During that time conferences were held with your board, with the superintendent of schools, and with numerous school principals and other school officers; careful examination was made of financial and educational records, together with the systems used in reporting, recording, filing, and using such data; the whole school plant was thoroughly examined; standard tests were applied in three different subjects to a large number of children in the elementary schools; and numerous observations were made of classroom instruction" (p. v).

After a preliminary chapter dealing with the general problem of education in Boise, the survey presents a study of "Organization and Administration" and "The Teaching Staff." The most outstanding criticism in these chapters relates to the form of supervision of instruction, which rests almost entirely in the hands of the general superintendent. Teaching work is required of all elementary principals, which practically reduces them to the capacity of head-teachers. Only three special supervisors were employed in the entire system. This system of supervision, the survey points out, is entirely inadequate for a city of 35,000 population.

Chapters iv and v deal with the "Curriculum" and "Efficiency of Instruction." The survey staff suggests the enlargement of the curriculum by the addition of more practical arts courses and recommends that "early steps be taken to establish an intermediate or a junior high school, consisting of Grades 7, 8, and 9, and that large place be provided in its curriculum for such courses as those just suggested, to the end that many of Boise's children may have as good training for *life* as the "few" now have for *higher study*" (p. 81). In

[1] J. B. SEARS, WILLIAM M. PROCTOR, and J. HAROLD WILLIAMS, *The Boise Survey*. Yonkers-on-Hudson, New York: World Book Co., 1920. Pp. viii+290. $2.25.

measuring the efficiency of instruction, standardized tests were given in writing, spelling, and arithmetic. The tests used were the Ayres Writing Scale (Gettysburg edition), the Ayres Spelling Scale, and the Cleveland Arithmetic Tests.

The next three chapters are devoted to the school children, studying the "Progress of the Children in the Schools," "Individual Differences among the Children," and "The Children's Health." The chapter on health contains a great deal of concrete material and presents a careful analysis of the problem. The method of supervision of janitors, who are entirely free from control by the principal-teachers, seems to be responsible for some of the conditions criticized. In chapter ix, entitled "Buildings and Grounds," the survey staff makes use of the Strayer Score Card for City School Buildings. The remaining chapters of the book deal with the "High School," "Educational and Vocational Guidance," and "Costs and Business Management." In the chapter on the high school a strong argument is presented for the establishment of a junior college. The fact that Boise is so isolated from institutions of higher learning serves to emphasize the need for this extension of the public-school system.

As a whole, the book presents a very compact and well-organized survey. It is written in a style that can be appreciated by the average teacher or layman. As an example of a brief, clear school report it will be of interest to many superintendents and principals.

French writer on child growth.—It is unfortunate that many excellent books on education which are written in foreign countries are inaccessible to American readers because of differences in language. Some large agency for selecting and translating outstanding foreign contributions would render a needed service. An example of such service is furnished by Mr. S. L. Eby in his translation of one of the works of an eminent French scientist, Dr. Godin. The translation of this book[1] introduces American readers to the work of a writer who has for years been a careful student of the science of education, and whose work has won recognition from the highest scientific societies in France. It also serves to direct the attention of American students to the trend of thought on the theory and practice of education in that country.

One of the criticisms of many of the studies of the physical growth and development of children is that such studies have measured large groups of children for each age, computed the average or median for each group, and then used the results as norms for studying the development of an individual child. Such investigations have limited scientific value. The view presented by Dr. Godin is expressed as follows:

> The only physical measurements worth while are those which admit of comparisons with previous states of development of the same individual. Such comparisons

[1] PAUL GODIN, *Growth During School Age.* Boston: Richard G. Badger, 1920. Pp. 268. $3.00.

can be valid only when repeated measurements are taken at regular intervals. These repeated measurements are necessary in order to enable the teacher and educator to know the child intimately and profoundly; it makes possible a degree of individualization of education unknown in the past. In its final analysis successful direction of education depends largely upon its individualization. It is along this line that every child—the supernormal, the normal, and the subnormal—will be enabled to realize his whole self. The work here presented is an example of the method of the individualization of educational practice [p. 6].

The book is also a valuable contribution to our knowledge of the adolescent period. The detailed and scientific analysis of growth stands in rather striking contrast to the sketchy treatment given in many books. Two methods are particularly emphasized by Dr. Godin. The first is that measurements should be repeated semi-annually in order to make clear the principles of rhythm and alternation in growth. Much that is significant in development will be lost if measurements are taken less often. The second method which is emphasized throughout is that gross measurements mean little unless they are broken up by finer analysis. For example, the growth in height loses much of its significance if registered only as total height. Such growth does not proceed in uniform fashion. The relative growth of the limbs, body, and head shows great variations at different ages. The relation of such segmental growth to pubertal changes is clearly marked. A scientific study of growth, therefore, must be far more analytical than has been customary if it is to be of the highest value.

The first half of the book is an excellent exemplification of such a scientific analysis covering the period from birth to maturity. The adolescent years are treated in special detail. This section culminates in a chapter which formulates the laws of growth which are significant for the educator. The last half of the book is entitled "Applications to Education and Pedagogy." Dr. Godin does not leave the reader to draw his own applications, but, in a series of nine chapters, points out in considerable detail how the schools should make use of the laws of growth. The last chapter attempts to work out an "individual formula" of growth which will function in the diagnosis of individual cases.

The language of the book is somewhat technical, a fact which is not entirely offset by the glossary at the end. An excellent series of charts and diagrams is provided. The book is worthy of careful reading by those interested in the scientific study of child development.

Educational principles.—The science of education like all new sciences can well afford to stop from time to time and take stock, thus orienting itself with the fundamental principles on which educational practice is built. Such a procedure is not so important with certain of the physical sciences. However,

in a science that deals with men and the minds of men so many uncontrollable factors present themselves that the frequent formulation of central attitudes and principles becomes necessary. A new volume[1] in the "Beverley Educational Series," edited by W. W. Charters, sets down and interprets the principles and central attitudes of education in view of current thought and practice. Hence, the appearance of such a book, which attempts to organize a great body of isolated facts and practices into a comprehensive unit, can be said to be timely.

The purpose and plan of the book are clearly stated in chapter i as follows:

> In educational thought and practice, there is need of guiding principles which conform to the truths established by modern science and philosophy. It is the purpose of this book to make these principles simple, definite, and clear. The truths established by science and philosophy are revealed from two points of view—that of natural science, which describes and explains man in the light of physical causation as an organism responding to stimuli from the environment; and that of teleology, which regards him in the light of final causation as a person controlled by purposes and ideas. The principles of education derived from these two points of view may be made more easily available by reducing them to a single system through the translation of those derived from the point of view of natural science, which is more accurate, into terms of teleology, which is easier. The method adopted here for presenting the principles of education is to analyze into its factors the process of human development which education is to control, and to find how these factors unite in doing their work [p. 1].

The book is divided into four parts. The first twenty-five pages outline the purpose and plan of the book and describe the larger factors in human development. These factors are "The Individual Process," "The Social Process," and "The Educational Process." Each of these factors is dealt with in the order named, and together constitute Parts II, III, and IV of the volume. The author's discussion of each factor is based on an analysis of the factor into its component parts, followed by a reassembling or synthesis of the parts into a unit. For example, under "The Individual Process" we find chapters on "Analysis of the Individual Process," "How New Purposes Are Made," "How New Means of Control Are Made," and lastly, the synthetic chapter "Personal Development." In like manner, the discussion of the "Social Process" opens with an analysis of the process, and deals in turn with the nature of purpose patterns—history and art, and the nature of control patterns—the sciences. These are next synthesized in the chapter entitled "Social Development." The third large factor in human development is covered in four chapters, namely, "Analysis of Educational Processes," "The Principles Underlying the Making of the Curriculum," "The Principles Underlying the Methods of Teaching," and "Educational Development."

[1] JESSE H. COURSAULT, *The Principles of Education*. New York: Silver, Burdett & Co., 1920. Pp. xii+468.

Unlike some books in this field, the author differentiates the point of view of teleology and that of natural science at the outset. This differentiation is accomplished by presenting the principles, in the case of each larger problem, from the teleological point of view. These are then supported by the conclusions of natural science. Another characteristic of the book is found in the emphasis that is placed on the importance of the appreciation of values in the educative process as over against the importance of the knowledge of facts. Throughout the book the author assumes a mid-ground between the extreme views held concerning each particular problem.

A preliminary statement of suggestions for using the book as a text, together with a graphic outline of the book itself, found in one chapter, add to the usefulness of the volume. Problems for further study are placed at the end of each chapter and a bibliography and index complete the book.

In the words of the editor, the book "will not only help the college student to orient himself in the midst of the complexities of such an unorganized field but will also provide the investigator and college teacher with, at least, a point of departure in his thinking."

Education and the League of Nations.—Dr. Luckey is well known as the author of several useful books dealing with various phases of education, and it is quite natural that he should gather up in his recent volume[1] his lectures and essays related in a more or less intimate way to the problems growing out of the World War. The title suggests in the main the three motives of the book.

Obviously it would be unusual were a collection of this sort to be possessed of organic unity. It is lacking here. Part I consists of chapters devoted to discussions of educational problems; Part II, to the dangers threatening democracy and the things which must be done to make it safe; and Part III, to the proposed league of nations.

We have called attention to the lack of organic unity in the book. This is more apparent than real, since in the part devoted to the discussion of educational problems there is a constant effort to impress the idea that education must fit pupils to live in a democracy. In the chapter on "The Reorganization of Education" the author attacks autocracy in education in these words:

> The autocracy in our educational system is well entrenched and will die hard. It cannot all be overthrown at once. But the greatest danger to democracy in the reorganization of education will come through the deception and double dealing of the left-over autocrats in high places who, in spite of their smooth phrases, are unsympathetic. If the reorganization of education gives to all the people what they need, desire, and have a right to expect, it will be because the work is directed by intelligent, well educated, clean, honest, sympathetic leaders [p. 80].

[1] G. W. A. Luckey, *Education, Democracy, and the League of Nations.* Boston: Richard C. Badger, 1920. Pp. 347. $2.50.

The function of education in preparing leaders in the democratic movement taking hold of the world is the common thread running through the discussion of educational problems. The diversity of topics, however, under which one must seek this idea, is indicated by the chapter headings "The Philosophy of Peace," "Harmonizing Vocational and Cultural Education," "Functions of the Graduate School of Education," "The Reorganization of Education," and "Educational Welfare Get-Together Clubs."

It seems hardly worth while to review the book in greater detail. Part II is made up largely of familiar comparisons, as between autocracy and democracy, with the customary appeals to the people of America to make a just appraisal of the conditions confronting them.

Part III contains the complete text of President Wilson's Fourteen Points, together with that of the revised covenant of the League of Nations. Dr. Luckey's philosophy leads him whole-heartedly to support the proposed covenant with arguments which are now quite familiar to all. It is unnecessary to restate them.

The book is not a significant contribution to the field of educational literature, but will be read with interest by those who know Dr. Luckey as a friend or teacher.

Survey of natural science in Great Britain.—The Great War revealed many weaknesses in the educational scheme both in this country and abroad. Not long after its beginning Great Britain realized, to her discomfiture, that she had failed to train technicians and scientists in sufficient numbers to meet her pressing needs. A bulletin[1] giving the complete report of the "Committee Appointed by the Prime Minister to Inquire into the Position of Natural Sciences in the Educational System of Great Britain" sets forth a program according to which it is hoped to make natural science a factor of equal importance with the classics or social sciences. That the report is from the hands of able men is evidenced by the fact that the committee is headed by Sir J. J. Thompson.

It is evident that, with respect to the teaching of science, educational thought, both in this country and Great Britain, is developing in the same general direction. The problems are quite alike. Nature-study has failed to make its success apparent largely from the want of properly trained teachers. In the higher forms the science work has been too formal and limited. Entrance examinations have been disturbing factors. Nevertheless, the need is apparent, and the report is replete with valuable suggestions and observations. According to it, not only is science to develop specialists, but it is to become a possession of all the people. "We are concerned with the education of the citizen, with the diffusion of scientific conceptions and habit of mind their study induces among the general mass of the educated people" (p. 22).

[1] Report of Committee on "Natural Science Teaching in Great Britain," *Bureau of Education Bulletin No. 63, 1919.* Washington: Department of the Interior. Pp. 106.

This aim is growing in the minds of educational leaders in the United States. The report is valuable reading and should be in the hands of school administrators and teachers of science.

Exercise book for locational geography.—The need of a better mastery of the geography of locations has been demonstrated by some of the recent standardized map tests. An exercise book[1] designed to reinforce the learning of locations has now appeared. This book gives a large number of outline maps arranged so that sheets of tracing paper may be conveniently placed over them. By tracing the maps and marking locations, the ordinary visual imagery is supplemented by a motor imagery and the learning process becomes more effective. Carefully worked out exercises are included for use with the maps. The device is rather ingenious, and it should prove very useful for supplementary work. The exercise book may be applied to courses in either geography or history.

A handbook for the director of amateur dramatics.—The demand created by the appearance of a book on dramatics published in 1919 has prompted the recent issue of an enlarged and revised edition. The author has added material in various forms and has brought the book[2] up to date with complete corrections as far as possible.

In the first part of the book the author gives definite instruction and valuable suggestions covering the selection of a play, acting, coaching, and staging. One finds discussion of such topics as the theater as an educational institution, the one-act play, high-school dramatics, details of coaching, and materials for production. Detailed and concise directions on coaching and producing are given in numbered order. While not exhaustive in its treatment of the various topics, the book directs the reader to more detailed discussions of the questions, with the result that it serves admirably as a guide to students of amateur dramatics.

The second part of the book, consisting of sixty pages, is a directory of useful information on dramatics. There are lists of plays by grades, for special occasions, on special subjects, for male and female characters, and for study and scene work. It gives the addresses of play publishers, of costumers, and of firms furnishing scenery and general supplies. A rather full bibliography adds to the value of the book.

The book's chief field of usefulness will be found among the smaller high schools and graded schools throughout the country. It was to improve and

[1] WALLACE W. ATWOOD, NELLIE B. ALLEN, and EDWARD K. ROBINSON, *Practical Map Exercises in Geography and History, Western Hemisphere.* Boston: Ginn & Co., 1920. Pp. 32. $0.56.

[2] GERTRUDE E. JOHNSON, *Choosing a Play.*. New York: Century Co., 1920. Pp. xii+177. $1.35.

benefit dramatic production in this type of schools that the book was written. In the main, the volume is a handbook that the director of amateur dramatics, whether experienced or not, will refer to frequently and with profit.

Instruction in music.—It would be difficult to choose any subject from the curriculum of the modern school which lends itself more fully to whole-hearted participation than does music. It is equally true that few, if any, possess greater possibilities of the reduction to the dead level of formal and uninteresting fact-getting. Probably no subject, until recent times at least, has been presented with so little regard to the instinctive interests of childhood and its capacities and desires for expression, and so little attention to the possibilities of outcomes of great social significance through larger vision and more adequate method.

Therefore, those who are acquainted with the work Mr. Farnsworth has for years been carrying on to rationalize the teaching of music in the public schools will welcome his book[1] in which he sets forth his ideas concerning the principles and methods underlying it.

The book is not a text. It is rather an exposition of a viewpoint and a method. Mr. Farnsworth finds his subjects in four children belonging to a family of native musical ability, and each struggling through some form of musical training. Little Nell is in the first grade, Jack in the eighth, Harriet in high school, and Tom in college, thus furnishing a wide range of development, with each demanding its peculiar treatment.

The points to be developed are presented in a running dialogue. Uncle Phil, a skilful musician with some insight into child nature, serves as the medium through which is passed the philosophy and doctrines concerned with such problems as "How to Listen to Music," "How to Learn Notation," "How a Child Should Learn to Sing," "How to Learn to Enjoy Classical Music," "How to Select Music," etc. Uncle Phil is represented as visiting the home, or inviting the children to his studio, and by clever insight and method developing in them a happy understanding and appreciation of music.

It is evident that the author has adopted this plan of presentation, not only to indicate his method and general plan of attack, but likewise to show the reactions of the children to the stereotyped and formal kind of instruction so commonly met with. The reader feels that many of the situations are forced, but he is also conscious of the fact that the author is attempting to carry his argument through to its conclusion, and that such situations are easily overlooked in the desire to be carried along by the writer's thinking.

The unusual characteristic about the book is the fact that the problems are presented from the viewpoint of both pupil and teacher. In this respect it is better than a formal text would probably be. Indeed, the author evidently

[1] CHARLES H. FARNSWORTH, *How to Study Music.* New York: Macmillan Co., 1920. Pp. v+294.

sought to exemplify his philosophy of teaching by the book itself. He has made it interesting without making it formal.

Book for leaders of school bands and orchestras.—In general, school bands and orchestras are directed by persons who are not professional musicians and who have had small experience in such work. A handbook,[1] prepared by the director of music of the Oakland, California, public schools, provides a practical aid for such persons. It deals with the concrete problems which arise in organizing and directing bands and orchestras in both elementary and high schools. Back of the writer is the experience of the Oakland schools which have been doing a superior type of music work.

The book takes up the question of how to organize instrumental instruction, and comments on the co-operation of the superintendent and board of education. It follows this by a detailed explanation of the composition of school bands; how many and what kinds of instruments are necessary; how the more expensive instruments should be provided; and detailed information about each kind of instrument used. There is a chapter on tuning instruments; one on seating plans for bands and orchestras; a very helpful chapter on the work of the conductor; and another on transposition of music. An extensive bibliography of selections suitable for school use is added.

For music leaders who lack professional training this book will be most helpful. It is practical, concise, and is written by one who has first-hand knowledge of the problem.

Educational toys.—The interest which the season brings in children's playthings may be capitalized by the schools if it is given proper supervision. According to a recent book[2] on the subject, a toy may become an educational tool if it meets the following requirements:

1. It must be within the child's power.
2. It must excite and sustain interest.
3. It must possess educational value.
4. It must be adaptable to light wood construction.
5. It must conform in size and complexity to the limited space and equipment of classroom conditions [p. 5].

In his book Mr. Petersen has given a manual for the construction of such toys in the process of regular school work. Full directions and patterns are given for a large amount of work which may be undertaken in the elementary school.

[1] GLENN H. WOOD, *School Bands and Orchestras.* Boston: Oliver Ditson Co., 1920. Pp. 198.

[2] LOUIS C. PETERSEN, *Educational Toys.* Peoria, Illinois: Manual Arts Press, 1920. Pp. 112. $1.80.

With the same purpose in view a series of toy patterns[1] has also been provided. It consists of a portfolio of twelve sheets of patterns for toys suitable for schoolroom construction. This material would doubtless add interest to many manual training classes.

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GODIN, PAUL. *Growth During School Age.* Translated by Samuel L. Eby. Boston: Richard G. Badger, 1920. Pp. 268. $3.00.

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HICKS, WARREN E. *New Champion Speller.* New York: American Book Co., 1920 [revised]. Pp. 245. $0.48.

[1] MICHAEL C. DANK, *Toy Patterns.* Peoria, Illinois: Manual Arts Press, 1920. 12 sheets. $0.80.

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PUBLICATIONS OF THE UNITED STATES BUREAU OF EDUCATION AND SIMILAR MATERIAL IN PAMPHLET FORM

Old South Leaflets: No. 218. *John Bright and the Civil War.* Edited by Lawrence V. Roth. No. 219. *The Northwest Fur Trade, and the Indians of the Oregon Country.* By William Sturgis. No. 220. *California in 1846–48.* By Walter Colton. No. 221. *The Hawaiian Islands in 1822.* By C. S. Stewart. Boston: The Old South Association, 1920. $0.05, each.

Recent issues of the Bureau of Education:

Bulletin No. 81, 1919—*Statistics of Normal Schools, 1917–18.*

Bulletin No. 85, 1919—*Development of Agricultural Instruction in Secondary Schools.*

Bulletin No. 86, 1919—*Administration and Supervision of Village Schools.*

Bulletin No. 10, 1920—*Correspondence Study in Universities and Colleges.*

Bulletin No. 28, 1920—*Monthly Record of Current Educational Publications.*

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